



A No
Class No
Sh No

# KODAIKANAL OBSERVATORY

BULLETINS Nos 1 to 13

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VOLUME I

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MADRAS  
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1908



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# Kodaikanal Observatory.

BULLETIN No I

## WIDENED LINES IN SUNSPOT SPECTRA

The following observation of widened lines in the spectra of sunspots were made between January 1903 and February 1904. Up to the end of January 1904 the work was done by or under the direction of Mr C P Butler Acting Director

The observations have been printed exactly as entered in the record except that all observations of the same spot have been brought together and the number of times that the same line has been observed has been indicated by a number in brackets following the wave length number. The wave lengths when given to three decimal places are from Rowland's *Exhaustive Table*. The lines above the bar in each column are the six lines between D and I and the six between b and I which have been selected as the most widened lines

The observations were made with a grating spectroscope attached to the Lerebour and Secrestan equatorial during the first six months of the year and thereafter to the Cooke equatorial. The observations were usually made in the third order

The observers initials stand for the following observers —

C I B = Charles I Butler  
K V S = K V Sivarama Aiyar  
S S = S Sivarama Aiyar  
G N = G Nagaraja Aiyar

The classification adopted is that of Lather Cortie in the *Astrophysical Journal* Vol XIII p 200. Where the spot formed one of a group the classification is that of the group and not of the individual spot

The positions given are only rough but should be sufficient for identification. They have been taken either from projections of the sun's image on a disc of about 8 inches in diameter or from photographs of the same size taken with the Dallmeyer photo heliograph. The numbers are the serial numbers for this observatory

No 67 (A)

LAT —18

LONG 341

CLASS—IIc IIIb

Date—1903	Jan	30	31	b	3
066 174	(1)		1 6 474	(4)	
5138 18	(4)		5671 071	(4)	
5143 301	(4)		57 7 878	(4)	
5147 1 2	(1)		731 137	(4)	
150 383	(4)		737 288	(4)	
51 1 8 3	(4)		5713 645	(1)	

Ob —O P B

No 69

LAT +2

LONG 112

CLASS—IIc

Date—1903	Feb	12	13	14	16	17
5138 70	(2)		1 6 474	( )		
5138 18	(5)		5671 071	(5)		
113 301	(5)		27 873	(1)		
5147 652	(5)		5 31 437	( )		
51 0 364	( )		573 89	( )		
1 6 8 3	( )		713 345	(5)		

066 174	(5)		160 57	(2)		
5131 697	( )		45 0 8	( )		
5160 419	(2)		1 7 55	(2)		
5163 200	(2)		17 04	(2)		
			5703 97	(1)		
			7 8 7	(1)		

Ob —O P B

**No 70**

LAT +25

LONG 99

CLASS—IVa

Date—1903 Feb 1 13

5066 174	( )	54 6 1 4	(2)
5188 518	(2)	5671 071	(2)
5143 901	(2)	5727 878	(2)
5147 65	(2)	5731 437	(2)
5150 363	(2)	5737 288	(2)
5156 823	( )	5 43 645	(2)

Ob —O P B

**No 71**

LAT -19

LONG 38

CLASS—IIIb IVd IVc

Date—1903 Feb 20 21 23

5066 1 4	(2)	5426 474	(3)
5188 518	(3)	56 10 1	(3)
5143 901	(3)	5 27 827	(2)
5147 652	(3)	5 31 437	(3)
5150 63	(3)	5 37 288	(3)
156 823	(3)	5743 645	(3)
5184 697	( )	5400 5 2	(2)
5163 200	(3)	5482 078	( )
		5490 367	( )
		5672 047	(1)
		5727 8 3	(1)

Ob —O P B

**No 72**

LAT +19

LONG 285

CLASS—IVa IVb IVa

Date—1903 Feb 25 26 27 28

March 1 2 3 4

5136 70	(5)	54 6 474	(8)
5188 518	(8)	56 1 071	(8)
5143 901	(8)	57 7 878	(8)
5147 65	(8)	5 31 437	(8)
5150 363	(8)	5737 88	(8)
5156 823	(b)	5743 645	(8)
5066 174	(8)	5460	(2)
5134 697	(1)	5471	(1)
51 0 419	(1)	54 1 4	(2)
5163 200	(1)	548	(2)
		548 078	(2)
		5490	(1)
		54 0 367	( )
		490 8	(1)
		5627	(1)
		5671	(1)
		5672 047	(5)
		5687	(4)
		5 39 7	(1)
		5740 2	(1)

Ob —O P B

**No 73 (A)**

LAT -22

LONG 303

CLASS—IIIa

Date—1903 Feb 25 26 27

51 270	(3)	54 6 474	(3)
5188 518	(3)	5671 071	(3)
5143 901	(3)	5727 878	(3)
5147 652	(3)	5731 437	(3)
5150 363	(3)	737 288	(3)
51 6 823	(3)	5743 645	(3)

5066 174	(3)	5471 4	(1)
5134 697	(1)	5182 078	(1)
5160 419	(1)	5190 367	(1)
5163 00	(1)	5672 047	(3)

Ob —O P B

**No 73 (B)**

LAT -23

LONG 298

CLASS—IIIa

Date—1903 Feb 25 26 27

5136 270	(3)	5426 474	(3)
5188 18	(3)	6 1 071	(3)
5143 901	(3)	5727 878	(3)
5147 65	(3)	731 437	(3)
5150 363	(3)	37 288	(3)
5156 823	(3)	5713 645	(3)

5066 174	(3)	5471 4	(1)
5134 697	(1)	5482 078	(1)
5160 419	(1)	490 367	(1)
5163 200	(1)	5672 047	(3)

Ob —O P B

**No 77 (A)**

LAT +21

LONG 306

CLASS—IVb

Date—1903 March 22 23 24 25 26 27 28  
29 30 31 April 2

5066 174	(11)	5426 474	(11)
5188 518	(11)	56 1 071	(11)
5143 901	(11)	727 878	(11)
5147 65	(11)	5 31 437	(11)
5150 363	(11)	5737 288	(11)
5156 8 3	(11)	5743 645	(11)

5111 9	(1)	5460	(1)
136 270	(3)	460 172	(2)
5 60 8	(1)	5471 414	(1)
5163 200	(1)	5482 078	(2)
		5490 367	(2)
		5627 8	(1)
		5672 047	(11)
		687 0	(1)
		687	(9)
		5716 7	(1)
		5740 195	(1)

Ob —O P B

### No 78

LAT -16

LONG 229

CLASS-IVa

Date-1903 March 27

086 174	(1)	1 6 474	(1)
138 18	(1)	671 071	(1)
143 901	(1)	7 7 873	(1)
147 6 2	(1)	5731 437	(1)
5150 363	(1)	737 288	(1)
5150 8 3	(1)	5718 61	(1)

(72 047 (1)

687 (1)

Ol -C P B

### No 99

LAT +19

LONG 242

CLASS-IVc III/ IVd

Date-1903 May 22 23

136 2 0	( )	126 471	( )
138 18	( )	6 1 071	(2)
143 901	( )	27 873	(2)
5117 652	(2)	31 437	(2)
5150 363	( )	737 88	( )
51 6 8 3	(2)	18 61	(2)

504 (1) 67 017 ( )

5066 1 1 ( ) 56 7 0 (2)

Ob -C P B

### No 80

LAT -20

LONG 140

CLASS-IV

Date-1903 April 2 3 4 5 6 7 8 9 10

11 12 13 14

5066 174	(11)	120 474	(13)
5138 518	(11)	671 071	(13)
5143 901	(11)	7 7 973	(13)
5117 652	(11)	5731 137	(13)
5150 363	(11)	5737 288	(18)
51 6 823	(11)	719 645	(13)

460 (1)

(72 017 (13)

697 (13)

Ol -C P B

### No 100

LAT +18

LONG 248

CLASS-III/ IV

Date-190 May 26 27 28

5066 171	( )	1 6 4 1	(3)
5136 70	( )	671 071	(3)
5143 901	( )	5727 873	(3)
147 6 2	( )	731 437	(3)
1 0 363	(2)	37 88	(3)
1 6 823	(2)	13 61	(3)

01 5 (2) 1 1 ( )

5138 16 ( ) 18 (2)

1003 ( )

56 72 017 (1)

5687 0 (3)

Ol ( I B

### No 98

LAT -30

LONG 287

CLASS-IVc IVc IVb IIb I

Date-1903 May 21

5066 171	(1)	1 6 174	(1)
138 18	(1)	671 071	(1)
5143 901	(1)	5687	(1)
5117 65	(1)	7 7 8 3	(1)
5150 363	(1)	731 1 7	(1)
5150 823	(1)	5737 288	(1)

501 5 (1) 672 047 (1)

5718 64 (1)

Ob -C P B

### No 108 (A)

LAT -20

LONG 26

CLASS-IIc

Date-1903 June 11

5066 171	(1)	4 6 174	(1)
5136 270	(1)	5671 071	(1)
5143 901	(1)	727 8 3	(1)
5117 6	(1)	5731 437	(1)
5150 363	(1)	5737 98	(1)
156 8 3	(1)	43 145	(1)

045 5 (1) 52 (1)

5138 518 (1) 67 047 (1)

5687 0 (1)

Ol -C I B

**No 108 (B)**

LAT -19

LONG 24

CLASS—IIc

Date—1903 June 11

5426 474 (1)  
 5671 071 (1)  
 5727 873 (1)  
 5731 437 (1)  
 5737 288 (1)  
 5743 645 (1)  
 5672 047 (1)

Ob —O P B

**No 112**

LAT +20

LONG 242

CLASS—IIIb

Date—1903 June 22 23 24

5426 474 (3)  
 5671 071 (3)  
 5727 873 (3)  
 5731 437 (3)  
 5737 288 (3)  
 5743 645 (3)  
 5672 047 (3)

Ob —O P B

**No 113 (A)**

LAT +22

LONG 226

CLASS—IIc IVa

Date—1903 June 22 23 24 28

5426 474 (4)  
 5671 071 (4)  
 57 7 873 (4)  
 5731 437 (4)  
 5737 288 (4)  
 5743 64 (4)  
 5672 047 (4)

Ob —O P B

**No 113 (B)**

LAT +23

LONG 220

CLASS—IIc IVa

Date—1903 June 23

5426 474 (1)  
 5671 071 (1)  
 5727 873 (1)  
 5731 437 (1)  
 8 288 (1)  
 5743 645 (1)  
 5672 047 (1)

Ob —O P B

**No 114**

LAT -24

LONG 2 6

CLASS—III/

Date—1903 June 22

5426 474 (1)  
 56 1 071 (1)  
 5727 873 (1)  
 5731 437 (1)  
 5737 288 (1)  
 5743 645 (1)  
 5657 (1)  
 5672 047 (1)

Ob —O P B

**No 116 (A)**

LAT -19

LONG 39

CLASS—IVa IVb V

Date—1903 July 1 3 4 5 6 7 9 10 11

5134 6 (5) 5426 4 4 (10)  
 138 518 (6) 671 071 (10)  
 5143 001 ( ) 5 27 873 (10)  
 5147 6 (6) 731 437 (10)  
 5158 823 (6) 5737 288 (10)  
 5163 2 (2) 5 43 645 (10)

5045 5 (1) 5460 (1)  
 5086 174 (3) 5460 572 (1)  
 5111 9 (1) 5460 576 (5)  
 5140 7 (1) 548 (6)  
 5144 8 (1) 5490 (2)  
 5148 8 (1) 5490 3 (4)  
 5150 368 (4) 5672 (2)  
 5180 3 (1) 5672 047 (9)  
 5183 00 (1) 5680 2 (1)  
 5687 (9)

Ob —O P B

**No 116 (B)**

LAT -16

LONG 43

CLASS—IVa IVb V

Date—1903 July 11

5134 6	(1)	5426 474	(1)
5138 518	(1)	5671 0 1	(1)
5143 901	(1)	5 7 8 3	(1)
5147 652	(1)	5791 137	(1)
51 0 868	(1)	37 288	(1)
5156 823	(1)	713 045	(1)
006 1 4	(1)	5400 5 6	(1)
		6 047	(1)
		5687	(1)

Ob —C P B

**No 117**

LAT -18

LONG 1

CLASS—V IVa

Date—1903 July 11

5134 6	(1)	426 174	(1)
5138 518	(1)	5671 071	(1)
5143 901	(1)	57 7 873	(1)
5147 6	(1)	5781 487	(1)
1 0 863	(1)	5797 288	(1)
5156 823	(1)	5 13 015	(1)
5066 174	(1)	540 76	(1)
		5 72 017	(1)
		5687	(1)

Ob —C P B

**No 118**

LAT +17

LONG 358

CLASS—V IIa IVa

Date—1903 July 11

134 6	(1)	4 0 171	(1)
5138 18	(1)	5671 071	(1)
5143 901	(1)	5727 873	(1)
5 47 652	(1)	5781 137	(1)
160 363	(1)	5737 88	(1)
5156 823	(1)	5 43 615	(1)
5066 174	(1)	5160 5 6	(1)
		5672 047	(1)
		568	(1)

Obs —C P B

**No 120**

LAT +14

LONG 235

CLASS—I IVd IV

Date—1903 July 20 21

5066 174	(2)	51 6 474	(2)
5131 697	(2)	5671 071	(2)
5143 901	(2)	727 8 8	(2)
5147 652	(2)	5781 137	(2)
5150 363	(2)	5737 288	(2)
5156 823	(2)	5 43 045	(2)
5138 518	(2)	5672 047	( )
045	(1)	5687	(1)

Ob —C P B

**No 130**

LAT +2

LONG 220

CLASS—IIIb III, IIIb

Date—1903 August 16

4 1	(1)
5671	(1)
7 7	(1)
737	(1)
731	(1)
5 13	(1)
672	(1)
5687	(1)

Ob —C P B

**No 132 (A)**

LAT +18

LONG 218

CLASS—III/

Date—1903 August 16

5143 901	(1)	1 1	(1)
		71	(1)
		57 7	(1)
		5731	(1)
		5737	(1)
		5 13	(1)
		567	(1)
		5687	(1)

Ob —C P B

**No 132 (B)**

LAT +18

LONG 223

CLASS—IIIb

Date—1903 August 16

5143 01	(1)	54 6	( )
		5671	(1)
		5727	(1)
		5 31	(1)
		5737	(1)
		5743	(1)
		5672	(1)
		5687	(1)

Ob —CPB

**No 144**

LAT -18

LONG 192

CLASS—IVa IVc IIIb

Date—1903 Sept 13 14

5136	(1)	54 6	(1)
138	(1)	5671	(2)
5143 901	(1)	5727	(2)
5147	(1)	5 31	( )
5150	(2)	737	(2)
5156	(1)	5743	(2)
138 6	(1)	5426 474	(1)
5143 9	(1)	5482	(1)
5147 7	(1)	5672	(2)
51 6 8	(1)	5687	( )

Ob rv —CPB

**No 149**

LAT +12

LONG 92

CLASS—IIIb IVd IVc IIa

Date—1903 Sept 25 26 27 28

5066 174	(4)	5426 474	(4)
5138 518	(4)	5671 071	(4)
5143 901	(4)	57 7 873	(4)
5 47 652	(4)	5731 437	(4)
1 0 363	(4)	5737 283	(4)
51 3 823	(4)	5743 645	(4)
4965 2	(1)	100	(2)
5043 8	(1)	5460 6	(1)
5134	(1)	5471 3	(1)
5134 5	(1)	5482	(2)
5136 270	(1)	5490	( )
5152 3	(1)	5490 967	(1)
		56 7	(8)
		56 2 047	(4)
		5687	(4)

Ob r—CPB

**No 150**

LAT 10

LONG 10

CLASS III/ IV

Date—1903 Sept 1

1 6 4	(1)
1 1	(1)
4 8	(1)
5 11 117	(1)
7 8 244	(1)
7 13 17	(1)
1	(1)
7 18 2	(1)
7 18 1	(1)
7	(1)
5 1 1	(1)
5 11 17	(1)

Ob r —(1) B

**No 152**

LAT +12

LONG 213

CLASS—IVc IVd IVa

Date—1903 Oct 3 4 5 6 7 8 9 10 11 12

5066 174	(8)	5426 474	(8)
5138 518	(2)	5 71 1	( )
5143 901	(1)	57 7 873	(8)
5147 05	(8)	5 11 117	(8)
5150 803	(1)	7 8 244	(8)
5156 823	(2)	5 11 117	(8)
4920 0	(4)	5131 0	(1)
5045 5	(2)	7 18 2	(1)
5053 2	(1)	7 18 1	(8)
5061 1	(1)	7 18 1	(4)
5061 1	(1)	7 18 1	(1)
5067 1	(1)	7 18 1	(1)
5087 3	(1)	7 18 1	(1)
5134 6	(1)	5 11 117	(1)
5134 7	(8)	5 11 117	(4)
5134 3	(1)	5 71 1	(7)
5136 3	(1)	5 1 1	(1)
5138 0	(1)	5 71 117	(8)
5140 5	(1)	5 71 117	(8)
5141 1	( )	5 71 117	(4)
5143 5	(1)	5 71 117	(8)
5143 3	(2)	5 71 117	(1)
5147 7	(5)	5 71 117	(4)
5148 3	(1)	5 71 117	(1)
5148 3	(2)	5 71 117	(4)
5148 0	(8)	5 71 117	(1)
5150 8	(3)	5 71 117	(1)
5150 6	(1)	5 71 117	(1)
5152	(8)		

Ob —CPB KVS nd 8 8

**No 153**

LAT -23

LONG 205

CLASS—IIb V IVe V IVe

Date—1903 Oct 6 7 8 9 10 12 14 15

5060 174	(2)	5420 174	(2)
138 518	(1)	5671 071	(3)
5143 901	(2)	5727 873	(2)
5147 852	(2)	5781 437	(2)
5150 303	(2)	737 288	(2)
5155 823	(1)	5743 64	(2)
4020 0	(1)	54 6 4	(6)
5045 5	(1)	5460	(1)
5087 3	(1)	5482 0	(1)
5134 6	(1)	5027	(1)
5134 7	(4)	5671 1	(4)
5134 9	(1)	671 2	(1)
5136 3	(1)	672 047	(3)
5136 4	(1)	5672 1	( )
5138 6	(1)	5687	(2)
5140 5	(3)	727 9	(6)
5141 1	(2)	731 4	( )
5143 5	(1)	731 5	(4)
5143 9	(1)	5737 3	(3)
5147	(5)	743 2	( )
5148 J	(2)	743 6	(4)
5149 0	(2)		
51 03	(3)		
5150 6	(1)		
5152 3	(1)		
161 1	(1)		

Ob —OPB KVS 198

**No 156**

LAT +15

LONG 92

CLASS—IVa IVb IVa

Date—1903 Oct 15 19 20 21 22 23 24

5045 5	(3)	54 6 4	(1)
134 7	(1)	671 1	(4)
5130 4	(1)	7 7 J	(4)
5138 6	(1)	5731 5	(3)
5147 7	(3)	573 3	(1)
5150 3	(3)	5 13 0	(4)
043 1	(1)	5420 174	(3)
5043 901	(1)	460 6	(1)
0 3	(1)	5482 1	(1)
5087 3	(1)	56 1 071	(3)
5134	(1)	507 047	( )
5134 6	(1)	5687 0	(1)
5136 2 0	(1)	5687	(1)
5136 3	(2)	5 27 873	(8)
5140 8	(1)	5 1 437	(8)
5141 0	(1)	5731 4	(1)
5143 8	(1)	737 288	(3)
5149 9	(3)	5743 64	(3)
5143 901	(2)		
5147 6 2	(3)		
5149 0	(1)		
5150 363	(3)		
5160 4	(1)		
5160 6	(1)		

Ob —KVS 198

**No 160**

LAT -18

LONG 297

CLASS—V IIIa I

Date—1903 Oct 30

5043 8	(1)	5420 4	(1)
5045 5	(1)	56 1 1	(1)
5134 7	(1)	5727 9	(1)
143 9	(1)	5731 4	(1)
5147 7	(1)	5737 3	(1)
51 03	(1)	5713 6	(1)
5160 6	(1)		

Ob —KVS

**No 161**

LAT +17

LONG 236

CLASS—IIb IVa IVe IVa

Date—1903 Nov 1 7 10

5060 174	(2)	4 471	(2)
5138 518	(1)	56 1 071	(2)
5143 901	( )	57 7 873	( )
147 0 2	( )	5731 137	( )
51 0363	(2)	5737 288	(2)
5150 823	(1)	5743 645	( )
5045 5	(1)	5120 4	(1)
5134 6	(1)	5182 0	(1)
134 697	(1)	5190 3	(1)
5136 3	(2)	5671 1	(1)
5138 6	(1)	5672 047	(2)
140 3	( )	5672 1	(1)
5143 9	(1)	5687	( )
5147 7	(1)	727 J	(1)
5150 3	(1)	731 4	(1)
		5737 3	(1)
		571 1	(1)

Ob —CPB dss



**No 162**

LAT +17

LONG 226

CLASS—IVa IVb IVa

Date—1903 Nov 1

5066 174	(1)	5426 474	(1)
5138 518	(1)	671 071	(1)
5143 901	(1)	5727 873	(1)
5147 652	(1)	5781 4 7	(1)
150 368	(1)	737 288	(1)
5156 828	(1)	5743 645	(1)

Ob —CPB

**No 165**

LAT -25

LONG 166

CLASS—IVe IVd

Date—1903 Nov 12 13 14

5066 2	( )	5426 4	(3)
5134 6	(3)	5671 1	(8)
186 3	(3)	5727 9	(3)
5143 9	(3)	5781 4	(3)
5147 7	(3)	5737 3	(3)
5150 3	(3)	5743 6	(3)
5043 8	(1)	5672 1	( )
5045 5	(3)		
5138 6	(3)		
5156 8	(1)		
5160 6	(1)		

Ob — S dKVS

**No 166**

LAT -24

LONG 159

CLASS—IVc I IVd I

Date—1903 Nov 16

5426 4	(1)
5671 1	(1)
5727 9	(1)
5 31 4	(1)
5737 3	(1)
5743 6	(1)

Ob —KVS

**No 179**

LAT +15

LONG 228

CLASS—IVa IVb IVa

Date—1903 Nov 30 Dec 2

5134 6	(1)	5426 4	(2)
513 8	(1)	5671 1	(2)
5188 6	(1)	5727 9	(2)
5143 9	(1)	5 31 4	(2)
5147 7	(1)	573 3	( )
5150 3	(1)	743 6	(2)

5045 5 (1)

Ob —KVS

**No 181**

LAT -17

LONG 156

CLASS—IIa IVa IVe I

Date—1903 Dec 8

5134 6	(1)	5426 4	(1)
5136 3	(1)	5671 1	(1)
5138 6	(1)	6 2 1	(1)
5143 9	(1)	5727 9	(1)
5147 7	(1)	5731 4	(1)
5150 3	(1)	43 6	(1)

Ob —SS

**No 185**

LAT -21

LONG 155

CLASS—IVa IVe IVc I

Date—190 Dec 10

5134 6	(1)	426 4	(1)
5136 3	(1)	5671 1	(1)
5188 6	(1)	67 1	(1)
148 9	(1)	5 27 9	(1)
5117 7	(1)	5 31 4	( )
5150 3	(1)	743 6	(1)

5045 5 (1)

Ob —SS

**No 187**

LAT +14

LONG 98

CLASS—IVa IVb IIa IVc IIa IVb IVa  
IVc IVa

Date—1903 Dec 8 9 10 11 14 15

5134 6	(6)	5426 4	(6)
5136 3	(6)	5671 1	(6)
5140 3	(1)	5672 1	(4)
5143 9	(6)	5727 9	(6)
5147 7	(6)	5731 4	(6)
5150 3	(5)	5748 6	(6)
5043 8	(1)	5296 0	(1)
5045 5	(3)	5400 5	(1)
5066 1	(1)	5400 6	(3)
5138 6	(6)	548 0	( )
5140 5	(2)	5482 1	(1)
5149 0	(1)	5490 4	(1)
5150 4	(1)	627 8	(1)
5156 8	(1)	5737 8	(5)

OI —S S d K V S

**No 192**

LAT +22

LONG 338

CLASS—IVa IVc I IIc

Date—1903 Dec 17 22

5184 6	(1)	426 4	(2)
5136 3	(1)	5671 1	(2)
5188 6	(1)	727 9	( )
5143 9	(1)	731 4	(2)
5147 7	(1)	5737 3	(2)
5150 4	(1)	5713 6	(2)

5460 6 (1)

48 0 (1)

567 1 (1)

Ob —S S I K V S

**No 188**

LAT +20

LONG 87

CLASS—IVa IVb IVa IVb IVc IVa

Date—1903 Dec 11 14 15 16 17

5134 6	( )	5126 4	( )
136 3	(5)	5671 1	(5)
5138 6	(5)	27 9	(5)
5143 9	(5)	5731 4	(5)
5147 7	( )	5737 3	(5)
5150 3	(3)	743 6	( )
5043 8	(1)	5460 5	(1)
04 4	(1)	460 6	( )
04 5	(5)	5460 7	(1)
5066 1	(3)	5482 1	(3)
5066 2	(1)	5482 1	(1)
5140 5	(2)	5618 8	(1)
5149 0	(3)	5619 8	(1)
5150 4	(2)	62 8	(1)
5156 8	(2)	672 1	(1)
5158 0	(1)	5687 0	(3)
5160 5	(1)		

Ob —S S d K V

**No 193**

LAT +10

LONG 11

CLASS—I IIc IIa I

Date—1903 Dec 22 23 24

5126 4 (1)

671 1 (3)

727 9 (3)

5731 4 (3)

37 9 (3)

13 ( )

0 0 (2)

200 0 ( )

5160 6 ( )

48 1 (1)

567 8 (2)

567 1 (1)

Ob —K V S d S S

**No 202**

LAT -14

LONG 172

CLASS—IV<sub>d</sub> IV<sub>b</sub> IV<sub>a</sub>

Date— 904 Jan 4 6 7 8

5045	(3)	5426 4	(4)
196 3	(3)	5671 1	(4)
5138 6	(3)	57 7 9	(4)
5143 9	(3)	5781 4	(4)
147 7	(3)	5 37 8	(4)
150 3	(3)	5743 6	(4)
5066 1	(1)	5460 6	(1)
5134 6	(1)	5672 1	(1)

Ob -KVS

**N 209**

LAT +20

LONG 30

CLASS—IV<sub>e</sub> III<sub>a</sub> IV<sub>e</sub> III<sub>a</sub> IV<sub>e</sub> II<sub>a</sub> IV<sub>b</sub>

Date—1904 Jan 14 15 16 20

5134 6	(3)	4 7 4	(1)
5138 3	(3)	5671 1	(4)
138 8	(3)	5727 9	(1)
113 9	(3)	731 4	(1)
5147	(3)	573 3	(4)
5150 3	(3)	719 6	(4)
5045 5	(3)	160 6	(2)
5066 1	( )	672 1	(4)
066	(1)		

Ob I V S d S S

**No 210**

LAT +21

LONG 318

CLASS—I III<sub>a</sub> III<sub>b</sub> IV<sub>b</sub> IV<sub>c</sub> II<sub>c</sub> IV<sub>b</sub> II<sub>a</sub>

Date—1904 Jan 21 23

5134 6	(2)	1 4	(2)
5138 3	(2)	671 1	( )
5138 6	(2)	7 7 1	( )
113 9	( )	741 4	( )
147 7	(2)	737 3	(2)
51 0 3	(2)	5713 6	(2)
4862 8	(1)	5219 9	(1)
4971 4	(1)	5160 6	(2)
4977 8	(1)	18 1	( )
5015	(2)	672 1	(2)
5060 2	(2)		
1 6 9	(2)		

Ob -S S

**No 206**

LAT +18

LONG 85

CLASS—IV<sub>a</sub> IV<sub>b</sub> I IV<sub>a</sub>

Date—1904 Jan 5 6 7 8 10 13

01 5	( )	54 6 4	(6)
136 3	(5)	5671 1	(6)
138 6	( )	5727 9	(6)
5143 9	(5)	5731	(6)
147	( )	5737 3	(6)
5150 3	(5)	5743 6	(6)
4920 0	(1)	220 0	(2)
5003 8	(2)	5296 0	(1)
5043 8	(1)	5460 6	(4)
5053 2	(1)	54 1 3	(1)
5060 1	(4)	5482 1	(1)
5087 3	(1)	5627 8	(2)
5134 6	(5)	5672 1	(4)
		5687 0	(1)
		5700 4	(1)
		5 03 8	(1)
		5707 3	(1)
		5718 0	(1)

Ob -KVS d S S

**No 213 (A)**

LAT -13

LONG 297

CLASS—I IV<sub>d</sub> IV<sub>b</sub> III<sub>b</sub> II<sub>c</sub> II<sub>b</sub>

Date—1904 Jan 25 26

5045 5	(1)	5428 4	(2)
5138 3	(2)	567 1	(2)
138 6	(2)	57 7 9	(2)
5143 9	(2)	5731 4	(2)
5147 7	(2)	73 3	(2)
5150 3	(2)	5743 6	(2)
5066	( )	5460 6	(1)
5134 6	(2)	5672 1	(2)

Ob -KVS d S S

**No 213 (B)**

LAT -15

LONG 291

CLASS—I IVd IVb IIb IIc IIb

Date—1904 Jan 25 26 28

5045 5	(1)	426 1	(3)
5136 3	(2)	5671 1	(3)
5138 6	(2)	5727 9	(3)
5143 9	(2)	5781 4	(3)
5147 7	( )	5737 9	(3)
5150 3	( )	5713 6	(3)

5086 2	(2)	5480 6	(1)
5134 6	(2)	5672 1	(2)

Ob —KVS d S

**No 221**

LAT +12

LONG 39

CLASS—IIa IVb IVc V IIIc IIIb IVc

Date—1904 Feb 5 6 8 9 13 15

5045 5	(1)	54 6 4	(4)
5086 2	(4)	5671 1	(0)
5134	(2)	5072 1	(8)
5136 3	(3)	5727 9	(0)
5147 7	(4)	5781 4	(6)
5150 3	(3)	5737 3	(4)

4866 5	(1)	5219 9	(1)
4962 8	(1)	54 6 5	(1)
1975 5	(1)	460 5	(1)
4976 4	(1)	460 0	(3)
5009 9	(1)	5461 7	(1)
5013 5	(1)	54 1 9	(1)
5066 1	(1)	548 0	(1)
5071 6	(1)	548 1	(3)
5071 7	(2)	5400 3	(1)
5087 2	(1)	5490 1	(1)
5088 4	(1)	5490 9	(1)
5134 6	(3)	5027 9	(1)
5136 2	(1)	50 8 0	(2)
5138 6	(1)	5687 0	(1)
5143 9	(3)	5703 8	(1)
5150 7	(1)	5708 6	(1)
5156 9	(1)	5 07 1	(1)
157 3	(1)	737 8	(2)
		5743 6	(3)
		5867 9	(1)

Ob —SS GN

**No 227**

LAT -12

LONG 210

CLASS—IIa IIIa IVb IVa

Date—1904 Feb 19 20 22 23 24 25  
26 27 28 29 March 1

5045 5	(8)	51 6 1	(7)
006 2	(6)	671 1	(10)
5134 7	(4)	5727 8	(5)
5136 3	(6)	5781 4	(7)
147	(6)	5737 3	(8)
150 3	(5)	5743 6	(3)

48 1 6	(1)	5194 3	(1)
48 8 7	(1)	5219 9	(6)
486 0	(2)	52 0 0	(1)
486 4 9	(1)	225 7	(1)
496 1	(2)	5238 8	(1)
496 2	(1)	5200 6	(1)
496 3	(1)	53 1 7	(1)
5009 7	(1)	5121 4	(1)
009 8	(2)	543 8	(2)
043 6	(1)	5442 0	(1)
5043 7	(1)	5100 6	( )
5043 8	(1)	461 0	(1)
5045 0	(1)	461 8	(1)
5045 4	(1)	466 7	(1)
5045 9	(1)	5471 3	(1)
50 3 1	(1)	5471 4	(1)
5068 2	(1)	5177 8	(1)
06 1	(4)	5177 9	(1)
5082 3	(1)	5482 0	(3)
5085 0	(1)	548 1	(8)
5087 3	(1)	5490 3	(1)
5087 4	(1)	5190 4	(3)
124 0	(1)	5400 3	(2)
130 5	(1)	605 2	(1)
5134 6	(2)	56 7 9	(0)
5134 9	(1)	0 8 8	(1)
136	(1)	5672 1	(0)
188 5	(1)	5672	(1)
188 6	(3)	5727 9	(6)
5139 0	(1)	5731 5	(3)
5143 9	(1)	5 3 4 8	(1)
5147 6	(1)	738 8	(1)
5147 8	(2)	5713 1	( )
5150 7	(1)	1 7	(1)
5152	(1)	815 1	(1)
5156 3	(4)	817 2	(1)
156 9	(1)	586 8	(1)
157 0	(2)	5899 4	(1)
5180 0	(1)		
5160 2	(1)		
5160	(3)		
5160 0	(1)		
5162 8	(1)		
108 0	(1)		
5163 1	(1)		
5165 1	(1)		
5168 5	(1)		

Ob —SS d GN

KODAIKANAL November 1904

O MICHIE SMITH

Director

M A D R A S

PRINTED BY THE SUPERINTENDENT GOVERNMENT PRESS

1905

## BULLETIN No II

The observations were made up to the end of January under the direction of Mr ( P Butler. The observers were K V Sivarama Aiyar (K V S ) S Sivarama Aiyar (S S ) and G Nagaraja Aiyar (G N )

13

D t d b	H M M T	B	I t d		L m b	I I h t	R n l
			N t l	b h			
1903							
S p t b 28 S			25		W		Tw l g d m l l t t l
D 25 S	9 30 t 10 0			6 58 14	W E E		T l l Th l g Tw m l l O m l l
D 28 S S	9 30 t 10 0		24		W		O m d t l y l g
D 29 S S	9 30 t 10 0		3	68	W E		T m l l V y m l l
D 30 S S	9 30 t 10 0		2	61	I W		Th m d t O l g
O b 5 S S	9 30 t 10 0		21	39 60	W W D		S m l l V r y m l l I l l S N t
D 8 S S	9 30 t 10 0		4	16 68 86	E L E W		S m l S N t Tw m d t d f y m l l I w m l l S m l l
D 9 S S	9 30 t 10 0		50 54 28	11 14 16	D E F E E		M d t S m l l S m l l M d t m l l M d
D 10 S S	9 30 t 10 0		22	69 59 33 26 t 28	E W E E		T l l g l t th V y m l l L Tw m d t d m l l t o
D 11 S S	11 0 t 11 31		54	37 66 32	D D F W		O l g O m d t d m l l t h th O l g b d t t p t h t b O d t
D 12 K V S	9 30 t 10 0		58 26 t 16	37 22	E W E E		O y l O e m a l l Tw l l t h th Tw y l a r g m d t d m l l
D 19 S S	9 20 t J 45		17 31	64 31	E E W		I w y l g O l g Tw m l l Tw b d b t m d t l y h g h
D 20 S S	8 4 t 9 5		6	41	W W		O l g d y l g l t h t l O m l t S N t
D 22 S	8 40 t 9 0		58	33 t 38 47 42 a t 2	I W W W		O n m d t O n y l a r g t w l g t w m d t l O a n t h O y l g O n l g Tw l g t w m l l d m d t
				24 t 34	E		O l g y l g d t d
				67 66	W W		O m l l O m l l O l g S N t

D t	a b	H M M r	B	L t t d		L m b	H g h t	R n l
				N t l	S t h			
1908								
O t b	28 KVS	J 0 t 10 0		20 51	24 24	D W W D		S l l O b g l l T d t O y b g
D	30 KVS	9 15 t 10 15		9 28	31 19	W D I D		H g h T w b d b t l w H l l d O h g h d n l l
N m b	7 SS	J i t 10 0 d 10 15		(4	31 31 3 23 21	L D W W W W		V y b l L g L g M l t L g S m l l S N t
D	10 SS	9 30 t J 0		60 30	15 28 3 33 1 50 48	L U L F F I E W W W		I l M d t M d t L g L g L t V y b d S l l S m l l S m l l
D	12 SS	10 10 t 10 30		68 (7 ( 01	20 (3 73 52	I D E F F I L W		M d t M d t L g L g S m l l m l b l t b t l n t t p S l l S l d V y m l l S N t
D	18 SS	9 15 t 9 40		54	( 1	D I W		O y l g O m l l O l g S N t
D	14 KVS	10 0 t 10 40		31	(8 31 15 38	L W I W W F		B d m d t B l m d t K l b S N t O l l l g l O b d m d t
D	16 KVS	10 10 t 10 0		63	51 87 68	D I W		I m d t l g d g r f s m l l O m l t a l n t T l m d t l d d t w b d
D	17 SS	11 5 t 11 20		8 19	8 19	I W		I w n d r t I w S N t
D	18 KVS	8 0 t 9 0		17	50 51 22	W E I W		O m d t d m l l t h t l S c N t
D	0 KVS	8 0 to 8 15		17	16 19 54	W D L F W		S N t O small O m l l O b g l d l k p o m n n d n l n d p m l t O y b g h t b l l w d m l f t O b g b d l o l l k p m m T w m d t l y l g h l b g h t O m l l O s m l l



D t d b	H M M T	B	L t t d		L b	H gh	l k
			N th	S tl			
1903	v						
N rb 21 SS	8 20 t 8 40			2 26 84 37 45	D E E E F		O m ll On ll l O m l t On m d t
D 23 KVS	8 30 9 20		4	94 t 44 11 84 38 53	F L W W W		A f h h l f ll O b d d h g l d l d d h h O l t Tw m l t
D 24 b	8 30 t 8 40			J	D		O l g S N t
D 30 KVS	9 0 9 30			34 17 2	I L W L		B d d t O b l l w b l t d m ll Tw m ll I b d l l m ll
D b 8 SS	9 0 t 9 30		12 11 16 4		D E E W W W		M l t N t M d M d t L g M d t M d t
D 9 KVS	10 20 t 11 0		35 17	52 17 23 40	F W E W W W		l m l O l l d l k O l g h t l w O m l m O y h g h d b d Tw d t
D 1 SS	8 20 t 9 0		18 t 27 10 30	30 63 62 58 62 18 33 18	E W W W E W W W		M d t V y l g S m ll M l t L M d t f t L g L g L M l t M l t S m ll
D 11 KVS	9 20 t 10 20		0	68 61 5 38 17	E E F E E L		O b g d t h d f m l m ph O b g d t h d f m h m pl O b g O b h t d m O m ll O y b g m ll
D 15 SS	7 45 t 8 15		62 59	54 62	E E L W		O l g m d t On y l g O m ll O l g
D 16 KVS	8 30 t 9 20			54 54 49 23 30	W / W W W		S l g O ll Tw l g d m d m Th m ll h g h t d t w m ll f t O m ll
D 1 SS	8 45 t 9 20		1 49 47 40 t 39	4 t 49 8	D E D E W W		L g I g L g A d m ll F l g M d t

D t d b		II M M T	B	L t t d		L b	H ght	R k
				N t l	S t h			
1903								
D	mb 17	SS	8 45 t 9 20	38 40 42 46		W W W W		S ll L g L g L g
D	22	KVS	11 0 t 12 0	57	37 29 29	W E D E W W		A g l f b g p m A f ll O b d b g O l d m d t O b g S f h h n d b l
D	23	KVS	9 15 t 10 30	1 19 27 t 37	40 29 59 59	L F D W W F W E D		O m ll S l m ll b ght L g O m d t L g b l l l ll O b g l m S f m l t p m O m ll O m d t n d t w m ll
D	24	SS	8 15 t 8 40	33 25	48 45 58 38	E D D D W		O y l g O m ll O l O m d t O y l g O l g l v y l g l t h th
D	2	SS	8 20 t 8 40	34	35	D W		O l g J h m l t t ll
D	26	SS	8 20 t 8 15	38	41 69 66 64 50	D E W W W W		Tw l g l t h tl O y l g O m d t O m d t O m d t O l g
D	28	KVS	8 30 t 10 15	16 23 50 62 70 58	22 34 45 38 15	E E E D W W W E L		Tw m d t d t l m ll O m ll O l g d m d t O l g O n l g O m l t O m ll O n m l t O l g d l d l k O l t O l g d t h d
1904								
J	y 4	KVS	9 10 t 10 0	33	33 10 67 31	T W W W E		Tw y b g Tw l g d m d t O n m ll B d l ll t l g v lo lw l d l k j l t t p O w l k l ght d m l t
D		KVS	9 40 t 10 40	11	90 40 52 66 69 37 11 t 21	W W F W W E D		O b d d y h g h d m ll tl d O b g d t w m ll Tw b g O m d t Tw l ll b g l j n d t t p O n m ll Tw b d m d t L w l d l k t d g 10

D t d b	H M M T	B	L t t d		L m b	H g l t	R
			N t h	S t l			
1904	M						
J y 6 KVS	10 0 t 11 0		19 27 29		W W W	0 1 1 t t h l l k l	
			12	2	D	0 1 1 t	
			28	28	W	0 1 1 g	
			55	46	D	B 1 1 w	
			37	65	W	0 1 1 g	
D 7 KVS	10 20 t 11 0		26	26	W	0 1 1 g	
			1	8	E	0 1 1 g	
			2	74	W	0 1 1 g	
			35		D	0 1 1 g	
D 15 KVS	9 40 t 10 30		30	30	D	0 1 1 g	
				19	W	0 1 1 g	
			9	29	W	0 1 1 g	
			59	59	W	0 1 1 g	
D 16 SS	9 20 t 9 45		27		L	0 1 1 g	
				3	Γ	0 1 1 g	
				39	D	0 1 1 g	
				42	Γ	0 1 1 g	
				12	W	0 1 1 g	
				8	W	0 1 1 g	
			38		W	0 1 1 g	
			43		W	0 1 1 g	
20 KVS	9 25 t 10 10		10	25	D	0 1 1 g	
			34		W	0 1 1 g	
				40	W	0 1 1 g	
D 30 SS	8 10 10 3 26 26 6 30 33		55	75 74 50 53 5 2 15	W W W Γ D Γ E L	0 1 1 g	
F b r u y 1 SS	8 32 34 39 42 48 50		28 t 33 4 t 6	74 75 36 49	W W W L W W	0 1 1 g	
D 2 SS	8 8 10 10 14 2		10 t 14	69 6 68 40	W W W W W	0 1 1 g	
D 3 SS	9 30		12		W	0 1 1 g	

D t d b	H M M T	B	L t t d		L m b	I l g h t	R l
			N t l	S t l			
1904							
F b y l G N	8 35 3 40 40 52 8 59 9 9		32 31	16 17 23 t 33	L I I I L W W W	b m l l M d t V y m l l V y m l l S N t V y l g M i t S m l l	
D 5 S S	9 10 10 10 12 11		60 6	7 4	W W I L	O l g d t O l g d t O m l t	
D 6 G N	10 4 t 11 4		61 37 31 4 9	3)	D I I I W	O l g O l g O l g d t Tw m l l A l f t w l t l t w l l s	
			26 91 (8		W W W	N t O l g l l g O m l l	
D 8 S S	) 21 ) 31 12 43 11		54 52 44 11 93 3	37	W W W W W I	O y l g O y l g O l g f t O n l t O m l l O m d t	
D 9 G N	11 0 t 12 0		71 73	70 73	W W I I W W W I I I I I I	O l l y m l l O l t O m l t O l g O l g y l t t d g b t 6 O l g y l g t l l t 8 O l g O m l t O l g O l O l l	
D 13 S S	8 45 50 9 02 03 05 06 07 06 15 8 31 t 9 33 9 50		13 t 19 31 29 31 31 9 28 27 1 82 t 79 59 t 57 60 9	31 31 9 28 27 1 18 23 13 3) 58	I F E F W W W W W I I I I I I	V y l M d t L g t S l l I t L g M d M l t S l l V y l g V y l I l L 8 S l l	
D 14 S S	8 42 15 45 15 49 50 51 50 58 9 04		6 t 54 38 23 8 1	51 53 51 33 8	F W W W I I W I W	A l p f l t l t t l M d t I t L t S l l S m l l S m l l S l l L V l t	

D t a b	H M M T	B	L t t d		L m b	H g	R m k
			N t h	S t h			
1904							
F b y 14 S S	9 04 06 06 09 15 20 30 30		16 20 23 33	12 55 7 73	W W W W E W E E		M d t L g V y l g M d t f t M d e t M d t f n t M l t M d t
D 15 G N	10 0 t 11 30		7 52	23 55 71 72 52 38 ( 28 55	E E L E E W W W W W W		Tw n l l Tw n l l O y l g l g d m d t s V t ( ) l l d t O y l g O d t d t w m l l O l d m d t O y l g d m d t O l l O y l S N t (b) O m l l
D 16 S S	8 9 9 13 16 17 8 21 27 30 32 33 36 37 41 44		56 44 42 33 34 0 23	60 58 44 42 33 18 38 46 50 67 68	W W E W W D W W L E F L D E		S l l V y l g V y l g f a t L g f t M d t f t M d t L L g V y l g V l b t 90 l g h L L g L g M d t L g
I 17 G N	8 35 40 9 0 5 23 28 40 10 15 2 30 11 0 10		61 9 2 14	59 45 5 15 23 64 70	W W L E W W L E L W W		O y l g O l g l d h g h O l l ) y l g t d 8 O y l g O l y l g S N t F l t l k Tw l O y l g l h m l l O y l g d y h g h
D 18 S S	8 20 9 28 28 30 40 4 9 0 8 39 33 36 47 47		41 t 37 19 t 17 25 4 44 1	68 50 49 17 27 13 43 t 4 46 t 4 63 71	W W W W E W E W E E E E		V y l g p t l d S l d S l d V y l g p t S m l l l d O m l l l m d t l t h t h A m b f j t l k j d t t p E p t M d t q t L g p t L g p t Tw m l l L g q t M d t q t
D 19 ( N	9 2 37 10 20 34		44 1	69 11	W E E W	170 ± 50 ±	l w m d t f t O y b g O m d f t O y l g b g h

D t d b	H M M F	B	I t t d		L m b	H l t	R m l
			N t h	S t l			
1904							
T b y 19 G N	10 50			10	E		O l g t l k t y h l i t p d
	56			41	E		O m d t
D 20 G N	10 50		42	39	I		O m d t
	11 0			1	W		O r h y l g t H g l t m p d y
	32		1		W		O l t
	33		31	80	W		O d t
	40				W		O l l
D 21 S S	8 15			41	W	60	L b p t
	18			8	W	50	L g l t
	0			5	W	2	S l d y f t
	11		5		W	12	q l l m t t t p
	20			10	I	10	S m l l t
	27			8	I	10	S l l b t b d t l
	31		33		W	18	L g p t
	13		J		W	6	V y m l l
	13				W	C	V y m l
D 22 S S	8 1			11	W	10	r l d
	21		43		E	1	L l l p d
	3		30		W	1	A l l l
	46		8		W	2	S l d
D 3 G N	8 30			47	W	1	O l d l h
	4			3	W	30	O m d t h g l
	8 50				W	1	O l l
	54		6		W	30	O m d t
	0		47		W		O y m l l
	0				W		O y l l t w l l
D 21 S S	8 15			18	W	2	I l t
	0			13	W	18	I l t l l
	30			3	W	60	I l t l l l b d l l t l l l
	0		30		I		I l t
	31			2	I	3	I l t
D 25 C N	11 0			10	I	18	O l l
	15			10	W	48	O l l
	3			87	W	10	O l l g l h
	4		13	10	W	1	O l l
	46				W	0	O d t
	0				W	21	O l g
	0			5	I		I l l
	9		5		I		O l l
	7				W	18	O l t
	7				W		O l l
D 26 S S	6 1		05		I	20	S l l p t
	0			10	W		S l l
	0			36	W	2	I w m l l t
	0			1	W	21	Q t
	1			14	W	11	I l l t
	1			1	W	14	I h l w h
	20			8	W	20	T l t l k p t
	23			1	W		I l t
	23				W	22	S l d f t l t
	35		1		W	31	I w l d f t
	10 17		28		W	30	C t
	0			43	F	18	S l d l t
	0		0	50	E	1	S l l
	0				W	14	T l l
D 27 C N	10 34			24	W	36	S l l p t
	11 0			50	E	60	L g
	C			3	E	80	L g
							L b

D t d b	H M M F	B	I t d		L m b	H g h t	R m k
			N t h	S t h			
1904							
T b y 28 G N	9 40			43	W	2	O l g q t f t f m t t b t h
	60			29	W	4	O t t p m d t q t b g h t
	0			19	W	24	O m l l d q t b g h t
	10 10		28		E	12	O m l l
	1		2		E	36	O m d t b l t
	0			10	E		O y l l d l w
	25		21		W		O y m l l d l w
	40			36	D	48	O m d t
D 29 b	9 44			59	W	34	L g
	10 08		48		D	34	L g
	17			39	W	82	O t f t
	10 2			31	W	18	Q t
	30			1	W	4	l p t
	31		5		W	18	D l t l d l t g
	36		5		E	0	E l t
	38			1	D	18	S n l l
	38			3	E	18	S n l l
	43			35	D	40	L q t t
	44			45	D	42	Q t
	58			52	D	70	Q t
M h G N	8 30			65	W	6	S l l
	5		11		W		O y d b d p t
	10 7			60	W	36	O l g f n t
	1		29		E	24	O l f t
	20			6	W	24	O l g f n t
	30			29	E	4	O m d f t
	40		49		W		O l l l
D S S	8 36			61	W	30	L g l t b b b b l t
	37			61	W	30	L p t b b b b g l t
	9 1		29		D	0	A y l w b k q t
	5			45	W		m l l t
	7			38	W	20	S l l t
	12			19	W	9	S l l f t
	25		32		W	2	L l t l d
	10 1		30		W	2	T m l l
	15		58 t 65		W		F y l w m l l
D 3 G V	11 0			61	W		O m d t f t
	10 10			40	W	4	A p f f t d t f t
	11 20			2	W		S N
	5			2	W		A g p f f l l f t
	35			3	E		O m l l
				66	W	24	M l l
D 4 S S	9 11			78	E	34	Q t l
	27			28 t 15	W	30	V y l s i p l t l d y h g g
	40		0		E	34	L m l t q t S N t
	42		24		E	4	I g l t
	4		14		E	30	L w l t y f t
	52			7	W		L g l t
	59		40		E		
D 5 G V	10 0				F	21	T l b g l t l t t h
	11 5		5		E	20	O l g b h t
	17		46		E	3	O l g b g h t
	0		1		W		T m d t b g l t l t g t h
	27			21	W		O d l f t
	40		4		W	3	F l g l t t l
	7			4	E		Th m l f n t l w
D 6 S S	9 5			6	W	30	E l t S N t
				8	W	24	L l t S N t
D 7 G N	9 0			70	W	60	S N t (
	10 0			56	W	4	S N t (b)
	1 0			34	W	36	S N t ( )
	0 4				D	30	O m l l t t l b g l t
	1 50			6	E		O m l l l d l b g l t
	55		23		W		O l t y b h t p t S N t (a)

D	d b	H M M T	B	L t t d		L m b	H h t	R m l
				N t h	t h			
1904								
M	h 8	SS			75 t 63	W	34	T l g l m l l pt S
				7		E	24	N t ( )
					40	W	21	Sl d
					15 t 5	W	20	D t t f l t g p k
				9		h	24	Tl pt S N (b)
				23		W	18	Tl m l
				25		W	30	V y m l
					18 t 17	D		M t l t g
					30	E		S N t ( )
					43	F	30	T l g l t h
							36	L g
							36	L g
							48	E l t
D	9	C N			70	W		fw l t
					60	W		O pt t t S N t ( )
					53	W		O pt d t S N t (b)
				65		F		O pt d t S N t ( )
					30	W		fw m l f t
					7	F		O m d t
				24		W		O m l j t k
				35		W		lh l j t k
					11	D		O l j t k
					46	D		Tw d t
								O m l t t l S N t (d)
D	10	SS			7	W	22	E pt
					53	W	42	D l t
					48	W	18	V y l l
				67		D	30	V y l g i t
				25		D	18	S l l t
				1		D	18	S l l t
					8	E	31	S l l d f t
					1	D	30	L pt
D	11	G N			73	W	11	O pt l l t S N t ( )
					3	W	14	O pt l l t S N t (b)
				8		E	18	O l f l t
					75	L	30	T l t g l t
D	1	S S			7	F	36	l l t S N ( )
					53	W	24	E pt
				4		W	20	E l t
				30		D	30	l f q t
				31		F	21	Q t
					10	L	42	fw l g l t l l y b g l t l
								th
				18		W	14	S l f t l d
				21		W		Sm l l t
						W		A y l b k
						W		/ y m l l l S N t (b)
						I		l l m l
						E	30	V y f t q t
D	13	G N			71	W	21	O n d t b l l t d pt S N t
					6	W	30	( )
				6				O m d t b l l pt D d D
						F	1	l l t
								l f t
				0		L		O l g f t
				11		I		O t l l l
				9		F		fw l l l d
						W		A l f t h l l S N t (b)
D	14	SS			36	I	33	fh l g
						W	60 36 33	Th l g
						W		fw y m l l f t l d
						W		A l b k
						W		l y f l d
						W	4 34	l y b g h t j t



D t d b	H M M l	B	L t t l		L ml	H ght	R k
			N th	S th			
1904							
M h 14	SS		12 31 53		W W W	14 20 58 55 & 31	O f t l O l d Fl q t
		11 0		10	L	40	L g f t q t q l t l f t l
		1		4	D	34	L h m l l t q t l t l t f m th
		2		1	D	1	O f t l t g
		3	6		E	21	S N t )
		7	48		E	5	L l t S N t (b)
		20		51	W		Tw y l w
		2		68 t 58	W	33	L l g
		2	8		D	30	L g
		26	64		E	38	Tw y l
D 1	CN	10 0		69	W	35	O m d l l t t l f t t t l l p
		20		28	D		t S N t ( )
		13 20		4	W		O y l g pt b l l t S N t (b)
			55		E		O l g pt
			39		D		Tw l g pt l t h th
			3	12	W		Tw y l b l l t l t g l l
				24	D		O l t q t S N t ( )
					E		
D 18	SS	8 59		55	W	12	L y m l t
		0 1		42	W	14	V y m l l
		4	19		W	2	W t l d
		5	24		W		V y l b g l t l k
			31		W	2	Tw m d t
		1	47		W	31	W t l d
		16	49		W	30	M d t l t
		17	51		W	18	S l l q t
		17	53		W	18	S m l l l nt
		28		4	D	24	M d t q t
		31		48	E	72	L g l l
		39		1	F	30	Th l l
		44	2 t 7		E		S N t
D 17	GN	7 5		54	W	24	O l f t j t l k
		8 0	10		W		O y l pt S N t
D 18	GN	10 0		32	L	30	O l g pt d p f j t S N t
		40		78	D	6	O l w t n ly b ght l t
		11 9		74	W		O y l g t n ly b l l t l t
		14 0		84	E		O m d t pt
		6			W		O l g m l t l t
		10	58		E		T m d t b l l t pt
		1	47		I		T l g pt
		20		34	W		Tw l d
		2		4	W		O l l t l t
D 10	SS	9 48		48	W	4	L g b l t
		11 38		33	W	26	M l t q nt
		35		14	W	30	L g q t t l k S N t ( )
		38		4	W	30	L g q t y f t
		4	94 t 3		W	24	Th m d t b g l t
		44	50		W	54	L g q t
		4	53		W		A y l w b k
		46	63		W		L g q t S N t (b)
		54	23		E	24	Tw l d f t
		59	12		E		S N t ( )
		12 0	3		E	0	S m l l b ght
		01		3	D		L w l d t k
		74		15	E	86	S N t (a)
		0		61	D	30	M d t q t
		68		67	E		V y l w f t



D t d b	H M M l	B	L t t l		L b	H g l t	R l
			N t h	S t h			
1904							
M h 2	SS			35	W	7	I g l t
				18	W	24	L g p t l g l t l k l k
				1	W	51	E p t l g l t j t k S N t ( )
				10	W		A m l l t k l t l t f t l l m
							ph
			9		W	36	S N t (b)
			2		W		V y l l i t l g l t S N t ( )
			29		W	0	E p t l g y l g h t S N t o ( )
			3		W	30	Th b g h t j t
			61		W		V y m l l
				68	Γ	48	A y l g l i f j t
				58	Γ	96	A m l l l m p f j t
				53	Γ	96	A l l l l f j t
			12		Γ	1	C l m j h j b g l t N l
			21		Γ	1	A y l l l g l t l k
			34		Γ	1	A y l l f t x t n f l ph
			41		E		A m l l l d t k
D 6	C N			45	W	10	V y f t b l l k
				38	W	6	A g p f f f l l l f t t l l f k l
				0	W	21	j t l t
			28		W	14	A l p f t l y l g l t n i t p
			37		W	12	A l d b l t l y b g l t S N t e o
			44		W	12	I t l y b g h t
			61		W	12	I t l y b g l t
			85		E	8	I t l y b g l t
			55		F	0	A l t b g l t j t
		0	14		Γ	0	V y m l l g l t
				3	Γ	10	( L b t t l y l g l t
				40	Γ	10	B g l t t l l d l l
				67	E	60	( I w l g l t
							V y l g t l l p y l l
D 7	SS			0	W	20	S m l l o t
				39	W	12	T l l f t
				20	W		O l m p l y l g l t N l o n i e
				5	W	(	L t l o t
			40		W	65	L g l p t S N t ( )
			61		W		S m l l f t l t
			64		W	12	T l l l d
			12		Γ	34	S l d S N t ( )
				61	Γ	48	V y l l p t v S N t ( )
				36	Γ	18	T l g l t t l l l t l
				32	D	8	O l g l t t l l l t
				29	D	60	O t l l
D 5	C N		37		Γ	24	O l g l l m t l
			26		Γ		O l d j t
			2		Γ		O b l j t
				4	F	9	O t l k d t l l j t o l t o t
				30	E	9	O l k l t l l j t o l t t
				59	E	5	O y l g t l k o
				4	W	18	O b d
				43	W		Th j t
				31	W		T l t
				16	W		O l t
			(		W		O b g l t l d
			24		W	18	T l l t g f l n l l
			4		W	30	O b l
			3		W	46	O t l l
D 29	SS			3	W	30	I p t p d l y l n g k f
				31	W	15	S m l l
					W	20	S l l
					W		V y m l l
					W	84	T l l
							V y l l f m l w t h n t l p v s f i t e e n
							t
					F	42	F t S N t ( )
					E		A f w m l l t k S N t e (b)
					D		V y b d f t j u i n t



D t d b	H M M T	B	L t t d		L m	H g l t	P k
			N t h	S t l			
1904							
A <sub>1</sub> 1 5	SS	J 15 22 28	41	1 50	W W W	36 54 24	A f t l d j t d f m h m l l P l t j t S N t B d t g h t l t
D 6	GN	9 30 t 10 30	1	51 32	L D D E E D D W W W W W	4 4 40 21	O f l l j t O l t j t O f l l j t w t h l l t t O l t j t l j S l l l t l t t h O f l d j t O l l T l t j t O l l j t l l t t t l T b l d O l t j t
D 7	SS	9 30 5 10 02 0 15 3 41	1 2 1 1	68 64 J 1 4 8 54 22 12 5	W E E E D D D W W W W W	36 1 J 60 1 9 30 12 12 4 30	B l t l V y m l l l l l t S N t T w l l t l t J l l l V j l l A y t l l j t l l t l l t h l l l t b l b V y l l V y l l l l t T l l f t l l
D 8	GN	9 30 t 11 0	6 2 4 2	55 26	D D D E W W W W	3 12 20 12 4	B l l t f l S l t j t N l f l j t N m l f l j t T j t T j t
D 9	SS	9 40 t 10 40	8 8 2 1	16 7 29 31 33 34	W W L L D E W W	4 45 30 4 24 48	B l d t l l D p t l l t l p t l t T y m l l f t T l t l t l S N t
D 10	SS	9 25 35 20 10 10	2 05 1 05 1	63 82 31 26 6 2 9 1 61 49 30 34 28 9	W D D E E L D E D L W W W W W W W	60 1 45 0 48 36 48 12 5 12 12 12 12 15 40 40 24	S N t
D 11	GN	9 0 t 10 0	05	29 20 9 7 d 6	D E D E		Th j t O b d j t T w l t j t

D t d b	H M M T	B	L t t l		L b	H l t	R m k
			N t l	S t h			
1904 A <sub>1</sub> 1 11	GN						
	9 <sup>m</sup> 0			32	E		O j t
	t 0			36	I		T j t
	10 0	1	10		W		D bl j t d
		1	40		W		Tw j t
			56		W		Th j t
			76		W		O j t
D 1	SS			65	W	2	
	8 30			0	W	36	
	t 1			8	E	30	
		1		81	E		
		1	4	21	L	1	
			8		L	21	
			16		E	1	
					F	42	
					W	2	
D 13	SS	3		65	W	96	T j pt S N t
	9 50			71	W	9	V j f nt
	10 20			59	F	30	I pt
				8	E	48	Tw j t
				6	E	24	O pt
				40	L	1	
				38	E	12	
				24	E	12	
	10 34		8		L	4	
			16		E	30	V y f t
			18		L	3	
			42		E	36	
			41		L	68	
			58		W	4	B ght pt
			56		W	48	B ght pt
			11		W	84	F t
				3	W	42	E pt
				5	W	36	E pt
				40	W	12	Tw pt
D 14	GN						
	11 15	1			E	40	
	10 45	1	52		E	86	B d
	t	7	21		E	36	Sh rt jet
	11 30		15		L	24	Thr j t
		3		42	F	36	Th j t
		4		53	E	50	Larg fl m t l
		3		76	W	50	L g fl m t l
		4		0	W	48	M b ht
		2		42	W	4	O d j t
			18		W	24	C d j t
		3	32		W	24	I m t l
			43				
D 15	SS						
	9 40	3		72	W	36	L ge
	0 53	2		81	W	36	
		1	57	53	L	48	V y b ght pt
		15	61		E	48	L g f t
	10 08	3	74		E	36	L g famt
	0 15	05	31		W	2	Bright pt
		2	1		W	75	E pt
				80	W	12	
				46	W	6	J pt
						42	
D 16	GN						
	9 0	6	62		F	24	fl m t l
	t 0	1	32		F	24	Tw j t
		4		14	L	9	S l j t h rt
		3		29	E	6	Th m l l h t j t
		1		43	E	6	C d j t h t
		1		70	W	12	J t t p p d t
		2		28	W	12	Th j t
		2		12	W	7	Our d j t
		5	1		W	12	Tw j t
			51		W	12	Tw j t
						18	S l j t t p j m d
D 18	SS	05					
	8 3			74	W	84	E pt
				40	W	42	

D	d b	H M V T	B	I t t d		L m b	H h t	R k
				N t l	S t h			
1904		M						
Ap 1 18	SS	8 35 t 9 45	2 3 1	43 53 5 0	37 21	F E D E W W W W	36 1 18 42 12 124 12 21 1	Larg L g Tw m ll
D 19	GN	8 0 t 9 30	5 25 4	64 44 30		F F E I E E L L W L D F W W W W E	72 36  29 38 61 57 65 07 70 10	Sl htly d turb d Fw j t h t L g fil m nt ! Th j t b d Sl t j t J t Slightly d t l d Sh t j t J t J t J t J t par t d f m b J t F k d nd b t j t Tw j t J t J t
D 20	SS	8 50 t 10 0			77 56 41 32 41 4 15 59	F F L E E E E W W	96 12 2 24 84 48 24 60	E pt S N t (  S v t (b) L g pt B ght rapt F mall pull s S Not ( L g b ght ptw
D 1	GN	J 0 t 10 0	1 1 0 15 2 2 14	22 13	10 11 42 54 58 9	L D F F L W V W W W W W	15 12 30 36 15 15 28 60 12 12 12 12 12 14	Sh t pl Sh t pl C d D bl j t  I l j b t l 4 fl mb J t J t J t J t Sh t j t Sh t j t
D 2	SS	9 1 t 10 30	05 2 05 1 2 1 05 18 {	55 43 22 18 18 5 14 22 59 55 36 31 5		D F F L E E E W W W W W W W W W W W W	12 24 18 30 30 12 8 18 12 12 12 12 14	An h q t p t d f m h m sph re T m ll B glt pt h gng pdly Tw m ll D pt E pt y b ght } S N t E pt y b ght } E pt y b ght } Tw f t l und d t ched f m chr m ph
D 23	SS	9 30 to 10 30	15		40 27 19	E D E	12 30 24	

D t d b r v	H M M T	B	L t t d		L m b	H g h	R m a r k
			N t h	S u t h			
1004							
Ap r 23	SS						
	9 30			11	D	30	
	t			8	E	48	
	11 30	15			E	1	Tw m a l l
		1	8		W	24	
			68		W	1	F l g r u p t
		10	56		W	60	
			38 t 28		W	48	
		6 {		8	W		
				9	W		
				65	W	54	} S N t
D 24	GN						
	9 0			63	W	24	
	t			9	W	24	
	10 0		34		W	28	
		1	7		W	6	D b l j t
			61		W	12	
D 25	SS						
	9 15	1		71	E	18	
	to			66	E	24	
	10 30	1		85	E	24	E p t S v t ( )
		2	5		E	12	
		4	8		E	18	
			21 t 18		E	42	E p t
			28		E	96	S N t (b)
		1	30		E	24	
		05	63		W	54	
			9		W	18	
			5		W	12	
D 26	GN						
	10 15		47		E	48	P l l a r h k
	t		18		E	52	P u l l l k
	11 30	2	11		E	6	L w b a n k
		1 {	1		E	28	Tw p u l l a j d t t p
		2		1	E	6	S h t j t
				41	E	12	
				84	E	12	S h t j t
		0 {		28	W	60	Tw p l l a r p e a d t d j m d t t p
				22	W	0	Tw p l l a r p d t d j m d t t p
		1		15	W	36	
				4	W	36	P l l
				2	W	36	P l l a r
		15	4		W		D b l p l l j d t t p
		6	15		W	12	S l j t l t g t h
			28		W	12	
		5	39		W	84	L g
		5	62		W	100	L g
D 27	SS						
	9 50			48	W	24	
	55			50	W	24	S N t ( )
				54	W	27	Tw t m q u i t e l m t g t t h t p
				57	W	1	Tw h t t m S N t (b)
	10 10	25		66	E	30	S N t ( )
	14	25		40	E		A v r y l w b n k
	18			22	E	12	Tw m l l p l l a r p t S N t (d)
				17	E	18	
	27	05		2	E	48	
			6		E	54	S N t ( )
			16		E	12	
	40	05	48		E	36	
			58		E	36	
	4		60		W	75	S N t (f)
			49		W	12	
			41		W	4	
			36		W	30	
			31		W	12	
	11 05	4	29 t 25		W	30	E p t S N t (g)
	11	15		8	W	24	E u p t y b g h t S N t (h)
		15		26	W	30	
D 28	GN						
	10 0	1	52		E	28	
	t	3	17		D	22	
	11 0	6		13	E	44	J t j d w i t h t h b l w
				19	E		J t



D t n d b	H M M T	B	L t t d		L m b	H g l t	R m k
			N t l	S t h			
1904							
Ap 128	G N	10 0 t 11 0		2 51 2	W W W W W W W W	12 12 1 24 24 24 2 72	L g  } J d t t p
D 9	S S	9 45 t 11 30	10  15 4 {	49 37 31	E E L E E E E W W W W W W W W	48 24 24 36 36 108 24 42 48 84 12 24 4	Tw m ll Tw m ll E pt E pt A n f d l p f b g h t l d l t D pt S N t Tw m ll L pt E pt F pt
D 30	G N	11 0 t 12 0	5 6 25 25	50 32 41 22	E E W W W	40 18 88	Th j t Th h t p ll O py m d l
M y 1	S S	9 10 t 10 05	1 25 9 36 54 29 2 05 2	84 8 49 44 10 9 36 54 29 2 19 6	E E E E E L W W W W W	18 24 18 36 24 30 12 24 48 45	Tw ll  E pt V y f t V y f nt E pt
D 2	G N	10 0 t 11 30	2 2 2 2 5 5 3 05 15 05 4 8	57 34 9 3 16 36 40 54 64 57 48 38 2 2 6 10 19	E E E E E F D L L W W W W W W W W	12 48 44 44 1 20 40 46 84 12 18 32 32 32 92 80	Th j t Th j t F k d j t  L g e pt p d l y l g g I g pt p d l y h g g
D 8	S S	9 0 t 10 2	7	42 20 14 t 7 5 2 5 34 36 6 12 11	E E E E E E W W W W W	36 12 27 7 12 24 60 24 30 4 24	E pt p d l y h g g Th pt  E pt D pl d b t l a t l t d O



[illegible]

D t	l b	H M M T	B	L t t l		L b	H ght	P mark
				N t l	S t h			
1904								
M y 15	S	8 50 t 2	05 15	7	51 67	W W W	48 4 15	
D 16	C N	J 45 t 15	05 1 1 1	61 30 18 0	11 18 32 3 59 0 48 9 3	E l L L L J L E E W W W W W W W W	48 0 30 0 4 1 4 4 24 20 18 19 18 18 12 1	B ght S par t d f m lumb D bl  D bl j t D bl j t
D 17	SS	10 0 t 1	1 05	1) 6	61 11	L L W W	4 12 24	Tw b ght p k S N t
D J	SS	8 1 l 0 1 0	1 1	10	47 2	E J J L E W	36 15 48 30 1	E pt
D 20	G N	12 ( t 30	1	( 54 1 8	6 34 11 5	E E D J L L E W W	34 36 40 1 15 40 10	B k  T l l
D 21	G N	9 45 t 30	1 2 1 2	1 31 16 38 57	3 4 17 5 18 3	L l L l W W W W W W W	35 4 50 30 6 1 18 12 1 1	M J t J t J t J t D bl j t N mb f j t
D 22	G N	8 0 t 0 1 0	1 2 2	1) 10 2	21 34 47 71 7 33 23	E l L L L W W W W W W W	4 4 18 12 24 18 21 21 21 90 12 30 36	B k j t J J t  T pl j t J t E j t O d P l l M M
D 23	SS	8 45 9 05	15 7	63 3 31	5 t	E J J J	18 81 84 86	S N t ( ) D l t N t (b)

D t n l b	H M M 1	B	L d		L m b	H h t	R m k
			N l	S t h			
1901	m						
V y 23	SS	15 2	1 t 12 (0 22		D W W W W	12 48 1 8 21	E p t S \ t ( ) Q t E p t S N t (a)
D 24	GN	12 0 t 1 20		0 21	D E W W W	18 21 10 80 25	S m l j t S N t S l j t S N t S m l j t S N t T w d m d j t
D 5	SS	8 0 t 8 50	1) 58 30	25	E D W W W	48 46 21 52	E p t i d l y l g g A b g h t l k l m g T w V y m l l d f t
D 27	SS	8 0 t 8 30 d 10 0 t 10 30	1 1 0 5	74 6 45 4 2 6 60	W E l D L E W	1 48 51 18 96 12 86	E p t S N t ( ) B g l t m l l S N t (b)
D 28	GN	9 0 t 10 0	4 8 2 15 2	42 3 5 1 88 55	E l D l W W W W W	40 20 90 1 18 26 28 16 8	L g j t J t D b l j t O d
D 20	SS	8 50 1 1 0 0 2 1 5	26 38 64 47 13	73 0 20	W l r r W W W W	4 1 48 12 24 27 12	T w y f t B l t p t A l b l l g h t p t
J 1	GN		2 1 17 16	8 1	r L t E D	48 36 86 1 18	S N t
D 3	GN	9 30 t 10 30	2 2 5	00 29 18	D L D E L W W W	20 12 36 36 48 24 40 48	S m l l b l j t L S N t ( ) O d S N t (b) S N t ( ) D b l D b l
D 5	GN	8 45 t 9 30	2 1 1 0 5 0 5 1 5 1	59 41 3 81 19 63 56 32 18 23 81 36	E E L E E W W W W W W W	28 24 36 10 36 42 20 48 48 48 24	L g J t S h t j t D b l d S m l l L g D b l j t L g t l k L g t l k L g S l l

D t d b	H M M T	B	L t t d		L m b	H h t	R m k
			N t h	S t h			
1904							
J 9	SS	7 40 t 8 0 d 10 0 10 40	1 1 1 4 1 1 3 1 1	62 56 18 2 57 17 37 26	L D I E F W W W W	24 80 48 51 21 80 7 20 30	A l d t l B g l t p t A b g l t t l V y m l l J l b h t p t M d t l g h t M d t f t T w l g p t V y m l l B g l t t g l S N t
D 11	SS	8 5  10 20  28 31  42 45	2  05 05  2 13 5 5 42 30 32 30 t 8 )	42 3 27 24 18  2 13 5 5 42 30 32 30 t 8 )	I I I F I L D L W W W W W W	30 30 84 18 21 60 48 27 18 12 48 70 70 18	D p t S N t ( V y m l l b g l t V y l g l t S N t (b) V y b h t T T w l t L p t  L g p t A l w b g l t b k V y l t
D 12	SS	8 40 t 9 0	0  21 3)	15 31  21 3)	J I I W	24 31 36 21	S N t
D 13	SS	10 55 11 3 6  13  25	05 3 1 13  1 1	4 12  15 t 1) 25 29 57 t 69 40 4 2	D I I I I F W W W W W W	24 12 36 71 24 31 21 31 21	V y m l l g l t I l t S N t ( I p t S h t l l J w I w I b g h t S N t (b) & ( )
D 14	GN	) 0 t 10 15	05 1 4  2  5 1 43	60 58 t 77 30 20 13  71 48 30 t 88 32 5 1 43	I D F I L F W W W W W W	48 4 26 18 18 3 4 12 1 20 20 20	B d j t T j t I j t I t D b l j t J t F B g h t l g D t b d S N t
D 21	GN	9 0 t 10 0	0 05 15 10 4 3	59 38  21 58 41 19 30 38 61	L F L F W W W W	12 10 12 20 60 24 12 36 81	S l t T l l D l l I t M b g h t O d T b l l t g t h B d l g l t t l l
D 22	SS	8 48	15 15  8	60 4 25	E E I D	12 36  18	A l w t g l t b k A t g l p l l

D t d b	H M M F	B	L t t d		L m b	H g h t	R m k
			N h	S t h			
1904							
J 22	SS	8 55 58 J 02 10	1 3 5 10	43 57 39	10 t 19  6	F 42 W 51 W 8 W 60 W 75 W 48 W 12	F t B g h t p t  Th l g
D 27	GN	9 13 20 25 10 23 17	1  2	42  4 3	  17 19	E 6 E 18 E 18 W 12 W 50	S N t J t J t
D 29	GN	8 15 40 37 35 8 32 9 2 8 23 20  J 8 8	1 5 1 10  3 2 5 4 1 1	74 57 10 1 2 t  19 t 24 33 t 37 40 59 70	8 28 14 53 84 50 17 15	D 16 D 48 D 15 E 12 F 44 E 48 D 20 W 30 W 1 W 15 W 15 W 48 W 96 W 15 W 12 D 30	J t  I t l y b g h t j t V y l g D b l j t J t L g  Chr m pl d t bed h t b g h t j t F l m t l t l l  V y f t
J ly 5	GN	15 38 30 10 14 9 54	  1 5	36 1	20 t 21 6 t 0 20 t 2	F 12 D 98 L 36 L 12 F 24 W 14	  F h t p j t
D 7	GN	8 6 10 0 4 0 0  9 10 11 J 7 2	1 5 1  0 5 7 3 1 1 0 5	5) 5  28 t 29 5 55 62	47 6 1 13 30 28 t 21 19 t 18	D 12 E 1 D 24 L 24 W 18 W 8 W 4 W 24 W 18 W 24 W 48 W 12	F t
D 8	GN	9 50 1 43 40 40 40 37 30 10 5 4 10 0 9 58 58 5	2 5  1 5 1 1 5 1 5 1 5 1 5	69 59 43 7 5 3 55 62 69 59 43 7 5 3 7 30 58 7 24 2 17 85 40 4 47	  7 30 58 7 24 2	L 12 L 24 L 12 L 9 L 9 F 9 D 20 D 18 W 9 W 12 W 9 W 24 W 12 W 18 W 12 W 12	J t  Sh t m Sh t m Sh t m F l m t l J t M M S N t  Th e e j t

D t d b	H M M T	B	L t t d		L m b	H h t	R k
			N t l	S t h			
1904							
J ly 9	GN	10 26 24	1 2	60 51 3	E E L	1 18 12	Tw j t Tw j t
		9 0 19 19 40 10	2 1 15	30 21 13	L E E E D E	12 6 6 18 18	
		10 15 40 35	0 05	2 t 28 32	W W W	1 48 24	A mb fl g fl m nt l B ght
D 10	GN	10 0 50 54 18 18 17 17 20 1	2 1      1 7	33       21 t 8	I E L I E L D W W	36 12 20 0 0 18 18 6 30	
D 11	GN	11 3 0	1 1 1	7 34 32 7 30 9 7	I D F L L L L	0 1 12 4 0 18 20	
		J 0 4 54	1 30	12 14	I E	12 0	
		0 1 2 0 0 8	2 2	33 10 J 11 10	E F W W W W	8 18 8 6 12 24	
D 1	GN	11 0 0 50 35 20	1 1 3 3 3	15 20  32 t 36 43 t 46	L L L W W W	1 1 21 21 18 30	F l m t l Th eo j t F t fl m t l
D 13	GN	11 0 0 50 35 20	1 1 3 3 3	15 20  32 t 36 43 t 46	L L L W W W	1 1 21 21 18 30	L g fl m nt l M F g
D 15	GN	11 20 0 3 0 11 30 30 30 11 3	3 1 5	59 t 57 20 20 t 23 50 t 60 63 t 68 30 28 22 60	I I F D F W W W W	30 12 46 30 36 12 20 21 1	Sp k l k E pt pl S N t F j t Th p m S l p m
D 20	GN	11 0	15	3	L	48	La ge pt S N t
D 28	GN	J 16 4 38 37	10 25	7 t 17 4	I F F	24 21 1 20	



D t a b	H M M T	B	L t t d		L m b	H ght	R m k
			N h	S th			
90+							
J ly 23	GN	9 8 35 10 24 8 18 14 14 12 12	25	29 33 78 72 80 t 37 33 21 8 0 t 1 9 33 53	D D W W W W W W W W W W	12 12 12 24 21 1 12 1 24 24 30	J t J t
D 26	GN	9 7 3 3 8 50 9 30 27 24 19 13	1 2 1 3 4 7	54 7 t 4 19 t 2 57 40 1 t 10 27 t 31 61	L E E D W W W W W	1 20 20 24 12 24 30 1	Sm ll j t Cu d B ght m B ght
D 27	GN	J 46 43 45 10 9 3 0 0 9 58 6 5	1 05 8 0 2 1 2	12 19 6 37 18 13 t 21 21 2 t 29 31 t 35 42 60 t 62	E D I W W W W W W	1 12 8 1 2 1 0 50 50 24	B ght m B ght t ll m T ll b k T ll j t
D 28	GN	8 38 38 32 32 30 7 22 11 9 5 0	05 15 2 1 4 2 4 4 4 05	(0 55 26 24 19 t 21 28 61 615 17 t 18 30 t 32 40 to 44 58 C2 t 66 6)	F D D L F I D I W W W W W F	21 36 8 ( ( 8 12 1 36 6 30 50 6 20 12	T ll fl t l
D 29	GN	9 15 10 2 9 59 52 51 49 47 40	05 1 15 4 0 05 5	20 9 8 41 34 t 80 21 10 2 t 27	E E L W W W W W	20 12 24 J 12 24 24 1	D bl D bl D bl T pl
D 30	GN	9 28 27 25 20 16 16 16 40 40	8 15	79 54 41 37 18 t 1 58 56 27 59 8 20 t 27	W E F E E E E W W W	24 6 18 18 12 6 C 24 20 20 36	O d n d d t h d f m h m ph

D t   n d   b		H M M T	B	L t t d		L m b	H g l t	R m	
				N t l	S t l				
1904									
A	t 3	G N	9 25 24 20 38 3		57		I L L W W	24 6 24 15 60	D t h d f m l m ph
D	5	G N	10 54 4 5 3 35 30 23 24 25 15 11 12	2 15 05 05 05 3 2 2 2 1	56 32 t 30  48 50 53 67 37 t 31 27 5 16 t 11 10 t 21 1 t 53 8		E E D E I I W W W W W	4 36 36  30 21 18 30 36 30 30	V y b ght Sh t
D		G N	9 3 0 0 0 8 56 58 53 40 35 J 18 17 16 16 1 10 7 7 6	2 2 2 2 2 3 1 1 1 1 1 1 1	8 30 34 31 t 29 20 t 18  2 t 4 15 15 t 41 0 t 52 68 58 31 t 31 2 21 t 1 20 t 27 53 7 75		I D I I E L I I W W W W W W W W	18 21 21 21 12 21 12 60 18 18 12 18 12 12 24 18 12	A l l  M wth h t l j t F t I l I m
D	7	G N	9 22 21 11 18 1 10 8	2 15 15 7 2 1 1	61 58 35 17  18 t 20 39 52 t 4 28 58 71		I I I I L I F W W W	1 24 0 12 21 12 12 20 12 18 6	T l l j t S N t
D	9	G N	9 20 20 16 10 2 0 35 31 30 21	4 1 3 15 1 2 2 2 2	63 t 59 58 7 t 24  12 52 58 t 60 50 43 22 26 t 28		I E I I I E W W W W	40 18 24 21 30 30 18 24 18 12	T l t g m t g t p  Tw fth m d t h d f n h m ph
D	10	G N	9 0 8 50 55  50  30 38	4  15 2  4 5	62—8 43 93 19 17—15 13 12 11 6  10—14 28 28 54		E E E E E E E E E E	18 & 21 12 1 12 30  18 12 18	Sm U Sm U Sm U  V y f nt

D t d b	H M M 1	B	L t t l		L m l	H h t	R k
			V t l	S t l			
1904							
A g t 10	G \	8 34 30 9 51 50 48 48 20 4 18 1 10	1 3   3    2   10	55 60-63 70 8 48-4 42 20 16  9-31 45-17 54 69	D E W W W W W W W W W W	48 10 18 1 4 24 30 1 12 21 12	B m b d t 9 h 45 m t
D 11	G N	9 5 2 8 8 55 3 70 9 16 1 1	3 2  1   4	58 42 30  4 24 29 53 23 46	D E F D E L W W W	10 24 1 12 1 12 24 24 30	Tw m l l t g th Tl q t l
D 12	G N	9 8 6 5 8 45 10 9 43 13 10	15  1 8  1 1 8	59 43 15  18 48 28 5 22	F F E F F W W	4 1 0 4 24 21 21	B ght b t m t l l
D 13	G N	J 30 2 52 48 47 40 1 13	 1 1    5	11 ( 60 51 27 18  ? 19	F W W W W W W	2 30 30 30 1 12 18 12	
D 11	( N	8 27 7 4 22 0 52 0 4 1 4 45 1 15 45 10 30 30 30	1 1 1 4  3 0.5 1 2 1 1 0 0.5 0.5 0.5 0 0.5 0.5 0.5 1	1 17 2  17 32 J ( 1 3) 8 8 28  1 22 21 31 4 55 56	E  L L J ( W	18 1 12 1 21 4 4 18 30 30 30 2 12 12 30 18  36 24 24 0 20 12 12 48 6 24 60	T q t l lh q t l Sm l l
D 15	G N	J 2 2 0 8 58 55 19 9 25 23 22 0	1  0.5 2 0.5 1  8 0.5 0.5 1	03 58 5 28  13 29 (8 57 43 9 82	D L ( F L D W W W W W W W W W W W W W W W W W W	36 24 24 0 20 12 12 48 6 24 60	

D t d b	II M M I	B	I t t l		L b	H l t	R k
			N l	S t h			
1304							
A g t l	C N	J 20	1	29	W	24	
		20	1	27	W	24	
		20	1	2	W	24	
		16	1	35	W	15	
		14	1	49	W	21	
		10	1	5	W	24	
		9	1		W	1	
D 16	G N	10 36	1	64 5	1	1	
		37	1	6 5	1	24	
		35	0 5	2	1	2	
		34	2		1	12	
		3	0 5	1	1	48	
		31	1	3	1	1	
		30	0	10	D	24	
		51	2	50	W	36	
		9	1	53	W	24	
			1	31	W	1	
		48		3	W	3	
		46	0 5	3	W	1	
		46	0 5	7	W	1	
		46	1	(	W	21	
		13		1	W	38	
		13	(		W	1	
		10	)		W	24	
		30	1	19	W	1	
D 17	G N	8 38	1 5	(	1	8	
		38	0	(0	1	30	
		35	5	9	1	1	
		3	0	1	1	12	
		82	0 5		1	18	
		31	0		1	1	
		31		9	1	(	
		30		10	L	12	
		30		12	F	12	
		5		11	1	18	
		55	1	51	W	1	
		5	1	51	W	24	
		5	1 5	7	W	21	
		0	0 5	39	W	18	
		1			W	1	
		45		11	W	18	
		11	0 5	15	W		
		11		1	W	21	
		40		40	W	1	
D 18	G N	8 47		9	F	41	
		14	0	14	1	1	
		10			1	1	
		10	0		1	(	
		36		41	1	1	
		35		0	1	1	
		)	0 1	47	W	6	
				40	W	(	
			0 7	8	W	0	
		8 5	2	11	W	36	
D 19	G N	J 3	2	(	D	8	
		2		0	1	12	
		17	1	23	W	1	
D 1	C N	) 8		71	W	12	
		5	1		L	18	
		11	0		1	21	
		3	1		F	(0	
		8 50	0 5	56	F	4	
		9 30	0 5	71	W	18	
		80	0 5	70	W	18	
		7		98	W	8	
		5		18	W	12	
							Sp d t b l t l k f m t h 1

D t l l f l m ph  
D t h l f m l ph

S N t

D t d b	H M M T	B	L t t d		L b	H ght	R k
			N t l	S t h			
1904							
A g t 21	GN	9 23	2 05 05 05	1 20 28 40	W W W W	21	
		20				24	
D 23	SS	10 44 44 40 25 14 14 14 6	0 15  6 05	3 33      3 2 37 40 41 58	E E E E E E F D	24 24 24 30 46 48 24 21	E pt E pt h f p k N p m b t h m ph y b g l t
D 24	GN	8 50 0 44 40 40 38 38 9 6 5 4 2 0 8 8 54	 4 1   3 1  05 3 05 05	37 18      7 29 34 58	l E E E I L L W W W W W W W W	20 1 36 6 21 18 49 12 24 12 36 72 36 1	
D 25	SS	8 14  16  7 41 55 8 2 6 6 9 11	  05  4  05  1 1 2	5 20  16 43 45 60 16 14  1 3 4 8	E E D E l W W W W W W W W	30   72 18 48 30 30 24 21	Al w l t B ght l w Sm ll Sp d t t t h t p B h t t w m t t p
D 28	GN	9 9 9 9 8 6  4 21 20 19 17 16 12	     05 2  1 0 25	30 9 2 15 7 5 4 3  34 54 73 61 59  9 40 61	l E E E l F F F l F W W W W	1 1 12 7 12  12 46 12 3 36 12 18 & 12 48	B d t t l } V y m ll F t S N t
D 29	SS	9 28  20  12  45 34 34	2  15  05 1 05 05 25  1 2	61 30 6    28 61 63	E E  E F L E F E W W W W	60 18 24 4 4 12 9 32 52 54 58  28 61 63	B d t t p Al w b k B h t t w m t t p Sm ll S N t ( ) S N t (b) At ll lightly l t g V y f t Tw m ll d t a h d f m h m ph



D t d b		H M M T	B	L t t d		L m b	H g h	R m k
				N t l	S t h			
1904								
S p t m b 9	G N	8 47	0 5	80		W	6	
		40	2 5	61		E	9	
				56		E	24	
		34		53		E	12	
		30	2 5	4 5		E	6	
		29	2 5		13	D	21	
		25	2 5		55	D	24	
		5	0 5		67	D	24	
		50			69	D	72	
		53	2		49	W	24	Γ t
		51		7	39	W	6	
		49		28		W	30	Γ t b d t t p
D 10	S S	10 25	2	57		W	12	
						D	36	
			0 5		16	D		A b g h t l t
		10 19			20	D	18	
		15	3		31	D	8	B y b g h t
		11	0 5		51	D	6	V y f t
		85	0 5		66	E	48	Γ t
			2	10	13	W	12	S l t b g h t t k h m p h l t b d
D 12	S	9 38	2	20		D	36	
					53	E		A b g h t p t S N t
D 1	G N	9 50	3	8 5		E	36	
		47			9	E	4	
		45	1 5		46	D	24	
		18			30	W	40	
		7		27	W	18		
		7		28	W	8		
D 6	S S	8 10		04			30	
		38	0 5	53		L	30	
			2	2		E		
		32	14	)		D	21 d 30	A l w b k
		5	1		27	E	30	Th t m l m
		2	0 5		3	E	12	th b
		20	0 5		49	D	86	Γ w l t l th
								Tw l t h th
		9 15	0 5		79	E		A m l l y f t l d
			1		66	W		A m l l y f t l d
		8 9			12	W	48	
			1 5		26	W	12	
		53	1 5		14	W	30	
		40	0 5	27		W	12	
D 17	G N	46	1	35		W	12	
				55 5		W	4	F t
			0 5	59		D		
		9 33	1 5	34		E	12	
		33	1	3		D	1	
		33	1	28		E	1	
		31			19	E	6	
		30			33	D	24	
		30			40	D	4	
			0 5		51	D	96	
		10 4			47	W	28	B d t t p
		40	11		28 5	W	24	
		35	0 5	8		W	18	
		35	0	5		W	12	
		3		38		W	18	
		30	0 5	52		W	24	
30	0 5	54		W	24			
30	1	58		W	24			
D 18	S S	8 57		59		E	30	
		54		45		F	30	
		3	0 5	38		L	86	Tw q u t l b d t t p
		50		33		E	86	
		4		1 5		E	42	B d t t p

D t d b	H M M T	B	L t t d		L m b	H g h t	R m k s
			N t h	S t h			
1904							
S i t m b 18 S S	8 41 41 36 32 10 04 02 10 0 9 10 10	8 05 15 05		26 275 275 2 70 9 47 40	D D D D W W W W W	48 24 72 18 24 24 24 48 48 136	D t h d f m l n b D t l d f l b V y b g l t p t v V y l l b t b g h t T w q t l T w q t l B l t t p T q t l
D 19 G N	8 57 57 1 54 54 52 43 40 36 9 9 5 4 0	05 1 05 05 05 15 65	42 385 3 29 27 0		E L L D E F D D E W W W W W W W W	24 24 12 24 24 108 18 72 72 24 24 24 18 36 12 24 72	S p t d f l b l y b t m t T i l l d t t l d t m d T i l l t b t A f t l l l t d t h d f h m l h
D 20 G N	9 2 4 0	8	16 26 19		E D D	30 18 60	A l l t f m l t h t t t k P w l t l S N t
D 22 G N	9 4		2		D	4	S N t
D 3 G N	10 01 03 00 58 57 6 10 15 18 12 11		38 32 13 15 13 40 6 7 6 62		F F L L I I E W W W W	10 24 30 6 3 20 24 21 18 30	D t l d f m l l
D 26 S S	8 51 3 51 16 41 11 9 34 31 3 2 3 15 1 15 07 00	1 3 1 0 2 1 05 15 15	60 44 35 18 8 10 1 05 73 68 3 10 3 3 2 1 18 10		I F L L D I L L I I W W W W W W W W W W	30 24 36 18 60 60 24 48 60 1 18 36 36 30 36 30 36 10	All w O l l h l t b d t l g I w q t l I w q t l A y f t l t l l l l S N t S p l t t b l l f t f t t p I l t l I t D t l l f m h m p l S m l l V y b g h t b b y b g l t S m l l D l l 105 l t l f f g l t I t b b p t l l y b g h t g b l d I t



D t n d b	H M M T	B	L t t d		L m b	H g l t	R m k
			N t h	S t h			
1904							
S p t m b 27 S S	9 23 21 19 14 11 C	1   4 4 6	8 46 43 5 15	    21 5 51	D E E E D I	48 42 4 36 24 72	D p t W t l y 48 l l d t d f t w p t 8 h 30 m D t h l f m h m p l T l l b t p l y h g g D b l D b l
	9 46 40 33 28	  1 5 1 5	  34 60 5	56 67 1	I W W W W	48 7 84 42 60	
D 28 G N	9 00 8 55 5 50 20  41 6	2 2 2 5  0 5 3 5 5 5	54 40   14 89 62 5	  25 38 65	E E D E W W W W	84 36 12 12 18 0 12 30 1 60	
D 29 S S	0 18 7  35 10 22	5 1 5  4 5 1 5	55 5 6  15 27 63 5	      23 28 5 3	E W  W W W W	42 d 66  66 36 48	L w L p t l h l f y b g h t
D 30 G N	9 13 12 10 10 5 5 3 19 17 16	1    0 5 2 1	68 68 37 34 5   9 19 20	   23 28 5 3	W W E D E E W W W	18 12 26 24 18 24 12 24 24	D t l l f h p h
O t b 1 S S	9 10  3 0 0 8 41 9 6 25 20	8  0 5 3 1  1	64 64 55 3 26   30	    26 5 0 4 10 8	W D L E F E F W W W	54 15 42 36 4 1 1 24 4 30	V y f t D b l F f m l l h m p l l t b d S m l l f t F t D p t
D 2 G N	9 20 14 14 11 11 9 9 6  1 50 46 1 34 3 31 30	12 1  1    1 5 3 1 5 0 5	64 58 5 57 28 5 27 2 17 5  0 3 7 34	      47 52 61 5 79 38 4	W D E D E E E E F W W W W W W	48 24 30 1 36 12 12 60 24 12 1 6 18 30 96 18 18 24	F t B d d f t t p
D 3 S	9 20 11	0 5	20	50	E E	78 24	

## NOTES

1J03

S pt mb 28 Fl t m d lltl gl pl wgt b dw tl  
 D 30 Ol t d tl gl b k ml l d  
 O t l W th w l d wtl l tl k  
 D 19 Jb t w d fl gh b k l l d  
 D 22 Ol t d th gl ml d l d  
 N l 7 W tl l dy wth l k  
 D 12 W tl w l ly tl b l  
 D 13 H dp l d  
 D 14 O l b tw ll l k l d th lp t t wth th l mb  
 D 16 O yb db t t y l l l th d t t wh l th f m d  
 D 17 Th ly l y d l t w d th h t t d ml l d  
 D 18 O y l gh dl d t l t l t l t l l l b  
 D 24 Ob t m l l gl l d  
 D mb 8 H dl gl l

1J04

J y 20 Ob t w t l d l y l d  
 I l y 3 Th b d th gl l d  
 D 4 A b l fl b l ll m b tly d t b l l t fth l b t d g b t t d  
 D (Th lmbw d t b l b t tw l d  
 D 17 ( ) V y l b g b t f dg fth l b  
 (b) l l l t p t  
 D 17 Fl p m w t y l gl b t w l d l l t C D l F t ly l ht D D b b and  
 G b glt

M l 3 Fl l w t l gh tw p b l l t l l t t t t l D D b b f d d  
 D 4 A f t l d l t h l f m tl h m j h  
 D ( N l l l w y b ght l l b tl w l l y l g b f m Th fll w g b ght l w  
 l l th t b —5568 04 (II) 6402784 (O) 6111 388 (I) d B ) D (H l m) 5535 061 (F) 5527 038  
 (—) 5316 908 5316 958 (—) 527 926 (C) 5234 791 (—) 197 743 (—) b (Mg) l (Mg) b (b) 5018 629  
 (I) 4924 107 (I) (I) (II) Th w l l l m l w l m d f p m  
 D ( ) A l f f l b l t p m t l y l glt Th fll b b ght l b d —D D  
 5316 914 (F) 5316 790 (I) 52 22 (F) C P) b b b 5018 629 (F) 4934 277 (B) 4924 10 (F)  
 4900 301 (I P) 4888 867 (Yt th) 6141 938 (I B)  
 (I) A l g l m l t l y b ght Th fll w g l w f d l ght —6141 938 (F B) D  
 4934 3 (B) 5316 780 (I) 270 2 (I P C P) 5234 791 (—) 5226 707 (T —) b b b 5018 629 (F) 4924 107 (F)  
 4934 3 (B) 15192 15 (O)  
 ( ) l l b l t y l glt l t g tl l l l f l b ght w D D 5316 790 5276 5192 155  
 b b d l  
 (d) L f l b glt w —D D 5316 790 b l d l  
 D 8 ( ) B glt l d tl g f tl l m j h —4924 107 (F) b (Mg) b (Mg) b (F) 5316 308  
 d 816 9 8 (O) 320 220 (I) 5343 058 (—) 5527 038 (—) d 585 001 F )  
 (b) It t f l t n g l l t l wh l g w y l t b d  
 ( ) l h l m o p l y m h d t l d b t th w l m  
 D 9 ( ) D D 5316 900 b b d b w b ght  
 (b) D D 316 306 d l w b glt  
 ( ) D d D w l ght  
 (d) Ow g t th ky b g m l ky tl l m l d t b l l d th l l d t b d t m d  
 th f r l l m Th b kg l b v y b ght th h ht l d t b d t m ed  
 D 11 ( ) 6141 938 (B B) D D 5316 790 (I) b b b 5018 629 (F) w b ght  
 (b) D D 5316 790 (F) b b b w b ght  
 D 12 ( ) 4924 107 (I) b (Mg) b (Mg) d b (F) w b ght  
 (b) Th p m l d l g d t h p by l l O  
 D 13 ( ) D D 5316 790 (F) b b d b w b ght  
 (b) Th b kg dw t b glt t m th l ght fth p m  
 D 14 ( ) O v y l w b ght bank urm nt d l y f t l t g l m  
 (b) Th b w y b ght n O d F  
 D 15 ( ) D D b d b w b ght  
 (b) Th fll w g b glt l w th p m n n t l t t d —26 H —5914 335 (F) D D (N)  
 5688 230 (—) 5624 769 (F d V) 5589 582 (N) d 5553 804 (F)  
 ( ) Th l ght fth p m nd l t fth lmb w t b d w g t b dw th  
 D 16 A mb i v y m l l d f t t fth h m pl Th wh l g w y d t b d b t w th t  
 y l t t p m

[illegible]

1904

Ap 1 27 (7) D d d lly Th b f t l p m n d g f m t h b t b t 70 ml p e c d n d t h  
 D 20 V y l g l I t t d f m b f t g h t t l l t m f q l h h t Th t p f m f t h m w  
 M y 1 ( ) ( d l l a l t d d f t h j t  
 (b) B g l t m h t p l l t h d d p l m t t d  
 D 6 Th j t p t l f m t h h m l h t h y l w d d p l t t b t h l t d d  
 D 3 (a) I t l a d l g d b y 10 l k t h t p k  
 (b) F l l g i t l l t t f t f n l h m t t l t h t m t t t p  
 D 10 T l k t l b h w y f t t h t p j t g t t h b h d f k t t h t p  
 D 12 ( ) l l e w d p l t t f p l t h e l g t b g b t 2 λ d t h t b t 15 Th p m w  
 t d w t h p t 278 t h S W l m b  
 (b) O b t w m d t h g l l d  
 D 17 O l t d t h h l d  
 D 23 ( ) D l d f m t l l p h  
 (b) B l t l p l l w t l f t m t t h w w y f m f t h t p  
 ( ) T w b g h t l l l d g t t f t t h t l p d l y h  
 (d) A f t l d j l t t l h p h b y l n t g t m  
 D 21 O l y l t i t l l m l w b d w g t l d y t h  
 D 27 ( ) F l l t l t f y b g l t l l j t Th g — 17 E t — 27 E w y d i t b d Th O l w  
 l j l d t — 21 L l t g d l l t y f l u t 90 m l p d w y f m t h b  
 (b) l l l t y d t b d b y l l  
 J 1 O l y l t i t l l l w l l w l l w t h  
 D 3 ( ) l l l f l l p h w d y b h t l D D b l b b g m g t h m b  
 (f) S t ( )  
 ( ) l l l l l w g t l y l t b d t h d d j l t t d f b t 45  
 D 3 O l t w y l l t b d l y l d  
 D 11 ( ) A l l f l t t l t l t d f t l l t — t h g t t b g b t 4  
 (f) A t 8 10 t y i t t k l d l y t l l d w t h b k A t b t 85 t w b g h t d  
 l t t l t h w t l l l t t d d t h l f t h h r p h A t 8 15 t l d  
 D 1 O l t w d t l g h l d  
 D 13 ( ) V y l g l t I l y p l (+ 17 L) l t l t l h l h d t h t l y l  
 (f) A l l t l l t l w l p l t f b t d a t w l l d t h p m n t 10-59  
 ( ) O l t l t l l l y l l  
 D 11 F l l l l f t j t l t l j l m t f t h l m p l t l y b h t t l t t h  
 l t t l l d t l j t l j p d l t h l j l t l w t t h p l S m 5 m u t  
 l t t l l y l t l g l t m p h w d t l f t l l l  
 D 7 O w g b l t l t l l w t l l f m P A 180 t 270  
 F l y 8 l l l t l l p p p t 305 W h d l l y t p p d b k d t t 8 15 t  
 l y l l l l I m  
 D 15 l l t l l l D D l b l l l l t t l l l t O w d d l l t y w y  
 l l l l v F l l l t y l f t  
 D 0 B d t l t l t l l t  
 A b t 7 F l l m w y l g h t b t l l l b l w g p b b l y t b d w t h  
 D 13 l l w t l b l  
 D 28 l l l l l f l m l l p l t t l m 12 d t h 18 h h  
 D ( ) A t l d t h l f m t l l l l  
 (f) I l l d f t l t l d f t h h p h  
 S j t l 1 l l w t l l l w t m l g t l l  
 D 3 l l y  
 D ( l l l l l h g l t l l t b l l t l l t w m l t h g h l t t l d  
 l l w t l p l w t m d l t i t l g  
 D 7 ( ) l l t t l w l d l l m t O t t l d l f 35 D D b b d b (Mg n d F) d 5014 457  
 (f) b g l t T l l (678 m t d t t t l y  
 (f) T l l l w y b g h t d h g g l d l y b u t t l l l w 66782 t t l l  
 l l t h p Th l m w l y l t j t t 10 30 d h d l g h t d p l  
 t t t h l t d n l t f  
 D 12 ( ) l y t l S I l d t f t l w m l O b t w t p p d b y l d  
 D 20 ( ) l y f 0 f t l l m l m d t f l d t h  
 D 2 V y b g l t l l l 12 λ t l f g l l O t t w m d l y f m P A 180 t A 140  
 D 28 D t l d l t h h m l l w l h l t l l f 4 l g b t h d  
 O t l 5 ( ) Th p m l t t h t d l l m t f C t l l t d l t h t h d  
 l Th m t h w b t 15 λ Th y w l t 11 40  
 (b) O l v t w d f m P A 70 t P A 185 l y T l w t h l d y w t h b k

1904

O t b 11 Ob t m d tl gl d t t l l f m 8 45 t 9 4  
D 18 Th p m pt lly b ght tl w d l l m t t t l t f b t 15 λ t l f g bl  
D 4 Ob t w m d tl h th l d  
D 2 Th th w b d  
D 7 D D b b b b 5018 629 16 790 b l t l f D d D l k h l j t t t  
f th l Tl p l l l ( h t 30 λ t t l d l l t 15 λ t th l d  
N mb 2 Th S E q d t ly f tl lmb l l t f b l t l  
D 11 Tl lmb w t b d t m P A 180 t P A 210 t l l  
D 16 Th p m w l t d d t h l t m th h l h p b tw th l pl d t l  
p m w 72 t p d l l g At 9 O th l gl t f th l m l d h g l f m J t t  
144 d t l t l th h m l h t d t t l p f th l  
D 20 Th f l l l t l l b d t l l m p t - 679 235 (h ) O D D D 317 7 4  
b l b b 018 468 (N ) 581 f 4 ( ? ) 4924 107 (h ) 4922 336 (N ) F 4 096 (N P ) C 53 802 (F )  
5294 791 ( - ) 5192 75 ( - )  
D 21 Th g l h ht y l l b t w 2 t l t t d - 10 F  
D 2 ( ) Th p m w l l t l pt C d l l d t w d th l t l l d t  
b t 2 5 λ Th w d pl t y f tl m t l l t l d l m t t l d  
d pp d by 9 55  
(b) Th l m t l l t l l d n d b ht m f l t 7 t t l t l  
D 23 Tl t p t d d f t t m l t l l h t l t d - 28 L  
D 25 Th l l t l t t l d t t l t  
D 26 Th p m w t ly b ght C d pl l l t 4 λ t w l th d l  
D 27 D pt At th f t f th t l b g l t l l O d l l d b t 2 λ t w l t l d d t 9 5 l  
b b 5197 713 52 47 1 27 ( 8 d 31 ( 7 ) 0 l g l t  
D 28 ( ) Th l m l l ghtly l t l Th l t l t t l - 10 F w d t l d f th l l  
(b) M t l l 5018 629 (F ) 421 107 (Γ ) H 2 H r 4172 854 (F ) 458 1018 (F ) 429 21 ( l d O ) l O  
D 6678 235 (F ) 501 ( 34 ( Γ ) 4549 ( 42 (F ) 4552 63 (T ) 4 556 ( Γ ) w l l t  
D 29 ( ) A l g l t f t l t f th l m l h l l th d b g l t l  
(b) O h l f f th l m y l g l t d w l l t l t l l f f t l  
D mb 1 B g f m th t l t l t l f t t l l m h g t 84  
D 6 Th l f th l t t l l l l l t l t d l m d t l l l m l 1 1901  
D 9 Obs t w m d tl gl l d  
D 20 Tl th b d  
D 22 Th l m m l l l t t k t l t f tl p t w l g l t d l t l l  
p m w l d l y h g l t 10 30 t p t t th p t f tl l m l g l t d l t l l  
t b d pl d b o t l λ t d t l t d At 10 40 t l Γ l t l l m l l d l t l λ  
b th w y t t w p t  
D 28 Th b th l f d p m l f d m l l t t l  
D 29 ( ) Th th p m l t t t th l g t t l At l l t l f th t l  
b ght h t t d g 7 l g t L  
(b) L t l k t l b h l t l d f m th  
D 30 ( ) Th w th b p m t l t j f t l t t h g t Tl t t l h g l t 120  
(b) D bl Th r m l t l j t f l t t l g t l d  
D 31 Th b d th gh th l d f ly b t 10 d g f th h l th w t l mb

O MICHEL SMITH

Di cto K d k n l rd Madh Obser ions

19th Jun 1905

# Kodaikanal Observatory.

## BULLETIN No III

### D AS A DARK LINE IN THE SOLAR SPECTRUM

OBSERVATIONS of D<sub>2</sub> as a dark line in the solar spectrum have been reported so infrequently that it is usually held that the occurrence must be very rare. Prof. Young (*The Sun* page 10) says at times and especially in the neighbourhood of sunspots a very faint dark line marks its (D) place but usually the spectrum of the photosphere fails to give the slightest indication of its presence. Prof. Hill in his account of the spectrum of the great sunspot of 1832 says D<sub>2</sub> was once suspected as a dark line (*Amer. A. P.* Volume XI page 312). More recently several cases have been reported (*Amer. M. N.* Volume XLV page 514. *Kieussle Ast. Not.* N. 4012. *A. A. Buss The Observatory* N. 35 page 1) and it seems to be well to put on record the observation on this point which I have been made here.

Since the middle of March 1901 it has been part of the regular routine work of the observatory to make a careful search for D<sub>2</sub> in and near spots. The results are given in the following table. Most of the observations were made by Mr. S. Sitaran and Mr. G. N. Rajan and I have personally checked the numbers. When the spot is near the limb it is easy to determine the exact coincidence between D<sub>2</sub> and the bright line in the chromosphere and the suspected dark line in the photosphere. The spot has been too far from the limb to permit of the spectrum of bright hydrogen being observed at the same time. Very often it has been found to coincide.

As a general rule it may be said that the more distant the spot is the greater is the probability of D<sub>2</sub> appearing as a dark line but several cases are recorded of its appearance in spots that are quite distant from the limb. The behaviour of the C line is the reverse of this is also true—D being absent in very disturbed spots. In certain cases D<sub>2</sub> can be traced through the spot but in the majority of cases it is rather faint and is more visible in the spot than the spot itself which fills the whole line. At times the line can be traced through the spot and in fact the spot affects the scale of the line rather than the other way round. On some days D<sub>2</sub> has been seen clear in bright parts of the sun with no spot near and in these cases C was generally strongly reversed.

The line varies greatly in visibility (as in luminous) in different parts of the sun and it is usually even in indifferent weather conditions. In others it is seen with difficulty even with very fine sky. In the displacements indicating motion in the line of sight have been observed several times.

D t		L lty		Ol t fl	
1901					
M 1	20	Q	1 211	D k	
D	21	O	d 240	D k	
D	26	O tl 1mb 1 f 216 i 215 d t d l	237 dt tl t f tl b p 21	D l D k o tl l l l	
Ap 1	6	O t l 251 d l t		D l	
D	8	O f l		M + l t tly l l	
D	9	2 1255		D l	
D	14	2 1		D l tl f l l tl l t	
D	19	B t tl l f l t 4		D l	
D	2	266 dl tw 266 11ml		D k	
D	23	266 dl tw 6 f 11ml d l 265 l	th l f 26 y f tl l l	D l	
Tl l 1 mn f t th K l l l l t b p ml					

D t		l ty	Ob t f D
1904			
Ap l	4	O t d 66	D k
D	6	\ 266	D l d l f l
My	5		N t t l l b l 268 wh l l th l y d g l y d t b d l l g g y p d
D	28	O d 29	V y d k d h p
D	9	O d 292	D l
J	13	J 7	D l
J ly	7	O 305 d b w 305 n d l m b	V y d k
D	8	B t w 80 d l m b	D k
D	29	321	W d k k t
D	30	3 l	D k
A g t	5	T t l t f 326 d n 328	D k
D		323	D k
D		32 3 3	S l g h t l y d k d D k
D	8	B t w 326 d l m l	V y d k
D	9	N 3 8 N 326	V y d k S l g h t l l l
D	10	328 n t l f l a 330 d th t d w t l l	D l
D	11	326 d 328 t l t f t l m l t 331 332	S l g h t l y d k D l V y d k C q t
D	13	3 4 326 328 a d 333	D l C l t q t
D	14	3 l T t l t f t l g l 328 d 333	V y d l S l g h t l y d l
I	15	326	S l l t l y d l
D	8	333	D k t l w h l l t g
D	4	339	V y l k th h l g l d p p d t b b l m p l d y t g th
D	30	339 d 344	D k
S p t m b	1	339	D k
D		339	D k
D	3	346 n l t th w t f 343 1344	D k
D	4	E t f 346	D k
D	9	B th d f 348	D k
D	17	O th m p t 352 d t t f t	D l
D	19	352 353 354	V y d k D l S l g h t l y d k
D	22	354	D l
D	28	356	D a r k th h t f l m n t p p d t t h t f m th l t t l d d
D	24	356	D k
D	26	356	D k

D t		L lty		Ob t tD	
1904					
S l t m b	28	361	d t t h f 357	D k	
D	30	357	1301	Slightly d l	
O t b	2	7 362		D k t p t w h O w	l d t t h t f t
D	1	303		V y d l	
D	5	363		D l	
D	6	365 363		V y d l	
D	27	376		D l	
D	9	381		D k	
D	31	37		D l l l g t l t	
N b		383		V y d l l l l t	
D	18	390		V y d l	
D	2	399		D l l l g t h g p	
D	20	N 399 102		D l	
D	28	106		V y d l	
D	30	107		D l b t h p t f t l g p	
D b	1	407		D k	
D	6	113 111		V y d l b t w t h p t t l	l t b t g t h
D	10	B t w 119 d l m b		l t h l b o f t h l t b t g t h	
D	11	All l g t h p b t w 418 1410		D k	
1905					
J y	11	110		D l C l t l m p l	
D	17	110 150 d 451		V y l l d l f d	
D	25	l t w 160 l l b		D l	
D	30	l l m 404		D l	
b b y	2	404		V y l k t p t	t h l l t d d k d
D	4	404		l g t l y l l l l	l l t l t f t l
D	8	404		D l l l g t h t l	
D	13	478		Slightly l l	
D	8	487		D k	
D	26	487		D k	
M h	1	491		D l	
D	2	491		V y b g h t	
D	6	N 507		D k b t w n t l t w l t f t l g p	
M y	9	541		I t l y l l d h p t l t w h O w b l l t l y	
				B g h t t l m b	
				V y b g h t	
				V y b g l t l u b d d k t l t l p t n d	
				t l y d k t p t w h O y b g h t t	
				d t l p t	
				V y d k d l p	
				B g l t t h p t d d l b t w t h m	

5th August 1905

O MICHEL SMITH  
Director Kodaikāsal and Madras Observatories



M A D R A S

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1905

# Kodakkanal Observatory.

## BULLETIN No IV

### WIDENED LINES IN SUNSPOT SPECTRA

THE following observations are a continuation of those published in Bulletin No I and have been made in exactly the same manner. The same instrument was used up to 1904 December 1 and thereafter the grating spectroscope was replaced by a 3 prism Evershed spectroscope. One slight change has however been made. Instead of attempting to choose out the 12 most widened lines an estimate on a scale 1 to 10 was made of the amount of widening of each line and the mean of the estimates is given in column 3. No great confidence can be placed in these estimates—especially at first—but even a rough estimate seemed better than no estimate at all and after a few weeks practice it was found that the two observers agreed fairly well with each other.

The spot number given is the Kodakkanal serial number but wherever possible the Greenwich number has been added in brackets. For these and for the positions of the spots to the end of 1904 the Director is indebted to the Astronomer Royal who has kindly forwarded advanced proofs of measures and positions of the spots for 1904.

The results for all the spots have been collected in a catalogue at the end and a number of notes have been added giving the most interesting features of the daily observations of spot spectra other than those dealing with widened lines.

The observers were S Sitarama Aiyar (S S)  
G Nagaraja Aiyar (G N) and towards the end  
K V Sivarama Aiyar (K V S)

No 229A (Gr 5174b)

LAT - 14

LONG 129

CLASS—IIIb IIc IIa IVb IVa

Date—1904 March 3 4

W	l	l <sup>th</sup>	N Ob	mb t	f	M W	l	g
4712	088			1				
5043	761			2				
5044	545			1				
504	454			1				7
504	82			1				
5046	078			1				7
5006	174							7
067	871			1				
079	91			1				
134	697			1				)
5186	20			1				)
138	690			1				6
143	301			2				9
144	031			1				7
5147	62			2				7
5150	363			2				8
51	6223			1				(
5191	027			1				
5219	875			1				7
28	95			1				5
5426	474			2				9
5132	753			1				
5160	572			1				7
5478	300			1				
548	078			1				7
55	7736			1				
5627	859			2				
5641	365			1				
5618	796							
5671	071			2				7
5672	017			2				
5698	716			1				
5708	62			1				
5712	906			1				
5727	873			2				3
5781	437			2				9
5787	288							9
5789	698			1				
5740	195			1				
5741	088			2				
57	3182			1				
5743	645							9
Ob			—S S d G N					

**No 229B (Gr 5174a)**

LAT - 13

LONG 127

CLASS—IIIb IIc IIa IVb IVa

Date—1904 March 3 4 5

W	l	gth	N Ob	mb t	f	M W d	g
4901	52			1			
4942	083			1			
50	9 80			1		8	
5043	781			2		5	
5043	582			2		7	
5066	1 1			2		4	
5067	874			1			
5070	471			1		6	
5079	921			1			
5087	239			1		8	
5091	89C			1			
092	058			1			
5113	617			1		5	
5131	849			1		6	
5143	01			2		5	
5147	652			2		9	
5150	803			2		8	
5152	361			1		7	
5160	419			1		5	
5161	853			1		4	
5423	174			3			
5432	753			2		6	
5460	572			1		10	
5471	411			1		9	
5472	916			1		6	
5478	900			1			
5479	933			1		9	
5482	078			1		10	
5488	374			1		7	
190	367			1		5	
5527	796			1			
0	997			1		5	
553	202			1		5	
5541	110			1		8	
5627	8 9			2		8	
5614	305			1			
5648	796			2		5	
5671	071			2		10	
5672	047			2		8	
087	083			1		6	
5687	192			1		10	
5689	694			1		7	
5698	746			2		6	
5700	40			1			
5709	797			1			
5708	822			1			
5712	996			1			
5727	873			2		10	
5731	437			2		10	
5737	288			2		10	
5739	698			2		6	
740	195					6	
5741	088			1		6	
5743	182			2		8	
5743	645			2		9	
762	479			1			

Ob —G N

**No 230 (Gr 5180b)**

LAT +12

LONG 46

CLASS—I IIc

Date—1904 March 9

W	l	gth	N Ob	mb t	f	M W d	g
043	781			1			
5045	532			1			
5053	056			1			
5066	174			1			
5067	874			1			
5143	001			1			
511	652			1			
5150	363			1			
5426	474			1			
5400	72			1			
5671	071			1			
567	047			1			
5727	873			1			
5731	437			1			
573	98			1			

Ob —G N

**No 232 (Gr 5179b)**

LAT +17

LONG 67

CLASS—I IIIb IIb

Date—March 10 11

W	l	gth	N Ob	b t	f	M W d	g
4905	107						4
4965	351			1			4
5043	761			1			7
5045	454			1			6
5045	532			2			6
066	078			1			6
066	174			2			6
5134	097			1			6
5136	270			1			6
5147	652			2			7
5150	363			1			7
5	19 87			1			6
280	561			1			4
54	6 474						8
5460	573			2			6
54	7 901			1			6
5432	0 8			1			6
5627	859			1			5
5671	071			2			7
5672	047			2			7
5727	873			2			8
5731	437			2			8
573	283			2			8
5743	645			1			7

Ob —S S and G N

No 235 (Gr 5182a)

LAT - 17

LONG 313

CLASS—IVa IIIb IVb

Date—1904 March 9 to 19

W	l	gth	N Ob	b t	f	M W d	n g
4862 029				4		5	
4862 783				1		3	
4861 019				1		4	
4875 671				1		3	
4885 204				1		3	
4965 107				6		7	
4977 833				1			
4997 283				1		6	
5001 105				1		8	
5009 8 9				7		7	
5013 479				1		4	
5016 310				2		8	
5048 761				3		8	
5015 1 4				5		0	
504 582				9		7	
50 3 056				1		8	
058 170				2		5	
5058 301				1		5	
5061 882				1		4	
062 006				1		5	
5002 85				2		0	
063 3 5				1		4	
5066 078				4		7	
5066 171				7		7	
5007 874				1		4	
5085 513				1		8	
5087 239						7	
011 896				1		5	
5096 031				1		6	
509 215				1		6	
5134 697				6		5	
5136 270				4		5	
5138 690				2		5	
5140 336				1		6	
5140 553				1		8	
5113 101				4		8	
5114 031				1		6	
117 052				10		7	
5119 984				1		7	
51 0 363				8		7	
5152 361				2		5	
51 6 8 3				1		6	
5 57 103				2		7	
5100 554				1		5	
510 902				1		5	
5163 074				2		6	
5103 200				1		9	
5106 454				1			
5194 210				1		5	
5219 875				9		8	

W	l	gth	N Ob	mb t	f	M W d	g
5225 101				1		3	
5225 695				1		3	
5238 712				1		6	
5 89 13				1		6	
282 576				2		6	
5235 955				1		5	
5331 641				1		5	
5306 618				1			
5420 174				9		9	
5132 753				5		7	
5147 454				1		6	
51 7 610				2		6	
5160 572				9		7	
471 414				3		9	
5177 901				2		7	
5482 078				7		7	
5190 367				7		6	
5430 905				2		4	
5504 117				2		4	
5 12 013				1		8	
5530 907				1		7	
56 7 859				5		6	
5671 071				9		7	
5672 047				9		7	
5689 81				2		5	
5703 797						4	
5 07 204				1		3	
5707 265				1		3	
5716 671				3		0	
57 7 873				9		9	
5731 437				9		9	
5737 88				9		9	
573 098				2		4	
5739 873				1		5	
5740 115				3		4	
5713 645				7		7	
5700 50				1		3	
5806 075				1		3	
900 260				1		6	
5908 718				1		0	
5918 635				1		4	
9 2 795				1		5	
5978 768				2		3	
6004 095				1		7	
6012 150				1		1	
6039 953				1		5	
6033 080				1		2	
6081 005				2		4	
6085 470				1		1	
6111 872				1		0	
6126 43				1		6	
6135 580				1		7	
6199 398				2		5	
6210 895				2		4	
6243 320				1		4	
6252 048				1		4	
6306 024				1		3	

Ob v s—SS d G N

## No 237 (Gr 5183a)

LAT + 9

LONG 236

CLASS—IVa

Date—1904 March 16 to 26

W l th	N mb t f	M n g
Ob	Ob	Ob
4882 029	1	7
4884 919	1	7
4 65 107	3	8
4997 283		8
5001 165	2	7
5009 829	7	8
5020 208	1	
5025 027	1	
5025 749	1	
5013 761	3	7
5045 454	5	
5045 58	10	7
5058 170	2	7
5066 078	4	
5066 174	9	8
5067 874	1	7
5071 668	1	7
5085 841	1	7
508 513	1	6
5087 289	4	7
5184 697		
5186 270	2	
5188 518	1	
5188 690	1	
5140 836	1	
5140 5 3	3	7
5141 193	2	7
5143 901	5	
5144 081	1	6
5147 652	10	8
5150 363	10	8
5157 163	1	
5160 554	1	
5163 200	1	
5219 875	9	7
5225 695	1	
5238 742	1	
5280 561	1	6
5300 152	1	6
5304 355	2	5
5396 778	1	8
5397 822	1	7
5426 474	9	9
5432 58	3	6
5460 572	7	9
5471 114	1	9
474 486	8	8
5477 901	3	6
548 078	6	8
5490 367	5	7
490 905	1	8
5504 117	1	8
5580 997	1	7
5608 993	1	8
5627 859	8	7
5671 071	10	9
5672 047	8	9
5687 063	1	8
5689 694	3	7

W l th	N mb t f	M n g
Ob	Ob	Ob
5698 746	1	7
5708 787	1	
5707 04	2	6
5716 671	2	9
5727 873	10	9
5731 437	10	9
5737 288	10	9
5739 084	1	7
5740 195	1	7
5743 045	7	
5785 952	2	
6240 863	1	
6 43 320	1	
6271 486	1	
6274 870	1	
6366 707	1	
6455 820	1	
Ob	—SS nd GN	

## No 239 (Gr 5184a)

LAT + 18

LONG 236

CLASS—I IVb IVc IVe

Date—1904 March 20 21 22

W l gth	N mb t f	M n g
Ob	Ob	Ob
4905 107	1	7
5001 165	1	
5009 829	2	
5043 781	1	6
5045 454	1	
5045 582	2	6
5066 078	1	
5066 174	3	8
5071 668	1	7
5085 513	1	
5087 239	1	7
5138 518	1	
5140 553	2	7
5141 193	2	7
5143 901	1	
5147 652	3	8
5150 363	3	8
5219 875	2	
5426 474	3	9
5432 753	1	6
548 572	2	9
5477 901	1	6
5482 078	1	7
5627 859	2	7
5671 071	2	9
5672 047	2	9
5708 787	1	8
5707 204	1	8
5727 873	3	9
5731 437	3	9
5737 288	3	9
5743 645	1	
5866 675	1	
Ob	—SS d GN	

## No 240 (Gr 5186a)

LAT + 10

LONG 186

CLASS—V IIIb IVd IVc

Date—1904 March 20 21 24

W	l	gth	N mb Ob rv t	f	M W d	g
4965	107		2		7	
5001	165		1			
5009	829		2		6	
5010	864		1		7	
5020	208		1			
5025	027		1			
5025	740		1			
5043	781		1		6	
5045	454		2			
5045	582		3		7	
5053	170		1			
5060	078		1			
5066	174		3		7	
5071	666		1			
5085	341		2		7	
5085	518		1		7	
5087	280		2		7	
5184	697		1			
5146	70		1			
5138	518		1			
5138	690		1			
5140	558		1			
5141	198		1		7	
5143	901		1			
5144	081		1			
5144	203		1		7	
5147	652		3		8	
5150	863		8		8	
5160	554		1			
5163	200		1			
5219	875		2		7	
5304	855		2		4	
5426	474		3		10	
5460	572		3		10	
5477	901		1		6	
5482	078		2		7	
5490	367		2		6	
5627	859		2		8	
5671	071		3		10	
5672	047		3		10	
5689	691		1			
5716	671		2		8	
5727	873		3		10	
5781	487		3		10	
5787	288		3		10	
5743	645		2			
5785	498		1			

Ob v —SS dGN

## No 242 (Gr 5187a)

LAT + 19

LONG 153

CLASS—I IIIb IVd IIc

Date—1904 March 22 24 25 26 28

W	l	gth	N mb Ob t	f	M W d	g
4862	029		2		7	
4864	919		2		8	
4905	810		1		6	
4921	963		1		8	
4928	511		1		7	
4965	107		3		8	
4997	283		2		8	
5001	165		2		7	
5009	829		1		8	
5043	701		4		7	
5045	454		1			
5045	582		5		7	
5053	170		1		7	
5060	078		1			
5066	174		5		8	
5071	666				7	
508	341		1		7	
5085	13		1		6	
5087	89		3		7	
5110	53		1		7	
5141	198		1		7	
5143	901		1			
5147	652		5		8	
5150	863		5		8	
5219	875		5		7	
5304	855		1		4	
5397	778		1		8	
5397	822		1		7	
54	6474		5		9	
543	753		3		6	
5477	901		4		9	
5477	901		4		6	
5482	078		4		8	
5490	367		9		7	
5627	859		5		8	
5671	071		5		9	
5672	047		5		9	
5689	691		2		7	
5698	740		1		7	
5707	204		1		6	
5710	671		1		8	
5727	873		5		9	
5731	437		5		9	
5787	288		5		9	
5743	645		1			

Ob —SS dGN

## No 246 (Gr 5195a)

LAT + 15

LONG 105

CLASS—IVa IIIb IVc

Date—1904 March 26 28 29 30 31

W	l	gth	N Ob	mb t	f	M W d	n m	g
4862 029				8			7	
4864 919				8			7	
4875 671				1			7	
4905 310				1			6	
49 1 963				1			8	
4928 511				1			7	
4965 107				3			8	
4997 283				2			8	
5001 185				2			7	
5009 829				5			9	
5043 761				8			7	
5045 82				4			7	
5053 170				1			7	
5066 174				5			8	
5071 666				1			7	
5085 513				1			6	
5087 239				2			8	
5134 697				1				
5136 270				1				
5138 690				2				
5143 901				2				
5147 652				5			8	
5150 363				5			8	
5219 875				5			7	
5225 695				1				
5304 355				1			5	
5396 778				1			8	
5397 822				1			7	
542 474				5			9	
5432 753				4			6	
5460 572				8			9	
5477 901				8			7	
5482 078				8			8	
5490 367				2			8	
5627 859				5			7	
5671 071				5			8	
5672 047				5			8	
5689 694				2			7	
5698 743				1			7	
5707 204				1			6	
5727 873				5			8	
5731 437				5			8	
5737 288				5			8	
5743 645				2				
Ob				—SS			d G N	

## No 251 (Gr 5200a)

LAT + 18

LONG 21

CLASS—IIIb IVd IVb IVa

Date—1904 April 6 7 8

W	l	gth	Numb Ob	mb t	f	M W d	n m	g
4862 029			1				7	
4862 732			1				7	
4862 783			1				7	
4965 107			1				7	
5009 829			3				8	
5043 761			1				7	
5045 582			3				7	
5053 056			1				5	
5066 174			3					
5087 239			1					
5138 690			1					
5143 901			8				8	
5147 652			3				8	
5149 013			1				7	
5150 363			3				8	
5219 875			2				8	
52 5 695			1					
5288 742			1					
542 474			8				9	
5432 753			8				7	
5460 572			8				9	
5477 901			1				8	
5482 078			2				8	
5488 374			1				6	
5490 367			3				8	
5490 90			1				8	
5627 859			3				7	
5671 071			3				9	
5672 047			3				9	
5689 694			1				8	
5703 797			1				6	
5727 873			2				9	
5 31 437			3				9	
5737 288			2				9	
5743 645			2				7	
Ob				—SS			d G N	

## No 254A (Gr 5202a)

LAT - 15

LONG 279

CLASS—IIc IIIa

Date—1904 April 8 9 11 12 13 14 15 16 19

W	l	gth	Numb Ob	mb t	f	M an W dening
4862 029			2			
4864 919			3			
4870 823			2			
4875 6 1			1			
4965 107			6			8
5009 829			8			8
5013 479			1			6
5016 340			1			7

W l ngth	N mb t f Ob	M n g W d
5043 761	5	7
5045 58	8	7
5053 056	2	5
5066 174	8	6
508 518	2	8
5085 668	1	6
508 289	2	8
5096 357	1	
5120 592	1	8
134 697	4	6
5186 270	3	
5186 885	1	6
5188 279	1	6
5188 690	5	7
5189 087	1	
5140 336	1	
5140 553	5	7
5141 386	2	7
5143 288	1	8
5143 901	4	8
5144 081	1	
5144 203	1	
5 14 817	1	
5147 05	9	8
5150 863	9	8
5150 823	8	8
5180 554	1	8
5183 074	1	9
5183 200	1	8
5104 007	1	7
5219 875	5	8
5224 471	1	
5 25 695	2	
5225 974	1	
5238 742	5	8
289 137	4	8
5304 355	1	
5331 611	1	
5351 261	1	7
5368 616	1	9
5393 375	1	
5394 899	1	4
5396 935	1	7
5426 474	9	9
5432 753	8	8
5430 572	9	9
5470 298	1	7
5471 414	8	8
5474 430	1	8
5477 901	4	7
5182 078	8	7
5490 367	9	8
5490 905	6	8
5501 117	3	7
5 14 753	1	7
5517 084	1	6
5530 997	1	6
5538 025	2	6

W l ngth	N mb t f Ob	M n g W d
5605 171	1	6
5626 245	2	6
5627 859	7	8
5646 322	1	7
5649 304	1	7
5657 667	1	7
5668 593	1	7
5671 071	9	9
5672 047	9	9
5687 063	2	
5689 694	1	8
5698 746	4	8
5700 402	3	7
5703 797	1	7
5707 204	3	7
5712 996	1	
5716 671	5	8
5720 666	1	
5727 271	1	
5727 873	9	10
5731 437	9	10
5737 288	9	10
5739 698	2	7
5740 195	1	
5743 645	7	10
5762 479	2	5
5766 550	2	6
5786 193	1	
5823 910	1	6
5866 675	3	7
586 785	3	7
5873 436	1	5
5878 015	1	5
5880 250	1	4
918 773	1	6
5322 735	1	4
5938 270	1	4
942 789	1	6
5978 768	1	4
5988 785	1	4
992 218	1	4
6099 020	1	4
6089 953	1	6
6063 080	1	2
6064 859	1	4
6081 665	1	6
6085 470	1	2
6090 429	1	6
6091 395	1	6
6111 8 2	1	10
6118 8	1	8
6126 435	1	8
6135 985	1	4
6150 360	1	6
6154 438	1	2
6199 398	1	6
6210 895	1	6
6217 900	1	



W l gth	N mb t f Ob	M n g W d
6248 055	1	6
6 48 540	1	10
6252 048	2	6
6308 985	1	4
6308 024	2	5
6388 090	1	7
6386 564	1	7
6450 038	1	5
6455 820	1	7
6462 784	1	4
6471 885	1	5
6475 848	1	5
6494 004	1	6
6495 218	1	6
6578 030	1	8

Ob -SS d GN

**No 254B (Gr 5202b )**

LAT - 18

LONG 273

CLASS—IIc IIIa

Date—1904 April 11 12

W l gth	N mb t f Ob	M n g W d
4985 107	1	8
5009 829	1	
5043 781	2	7
5045 582	2	8
5058 056	1	
5086 174	2	8
5085 513	1	7
5087 289	1	7
5134 097	1	
5188 270	1	
5140 553	1	
5143 901	1	7
5147 652	2	7
5150 863	2	8
5158 828	1	9
5163 074	1	9
5219 875	1	
5225 695	1	
5426 474	2	10
5432 753	2	9
5460 572	2	10
547 901	1	8
5482 078	2	8
5490 367	2	9
5490 905	2	9
5504 117	1	
5627 859	2	8
5671 071	2	9

W l gth	N mb t f Ob	M n g W d
5672 047	2	9
5687 063	1	
5698 746	1	8
5700 402	1	7
5707 204	1	7
5716 871	1	7
5727 873	2	10
5731 437	2	10
5737 288	2	10
5748 645	2	10
5762 479	1	4
5766 550	1	4
Ob	-SS	d GN

**No 261 (Gr 5206a )**

LAT + 19

LONG 197

CLASS—IVa IVb

Date—1904 April 16 18 19 20 21

W l gth	N mb t f Ob	M n g W d
4985 107	8	8
5009 829	5	8
5013 479	1	6
5016 340	1	7
5043 781	2	7
5045 582	2	7
5053 056	1	6
5062 066	1	7
5062 285	1	7
5066 174	4	8
508 668	1	6
5087 239	1	
5096 357	1	
5138 690	3	7
5140 553	3	7
5141 886	1	6
5143 901	1	
5144 031	1	8
5144 847	1	
5147 652	5	8
5148 851	1	
5150 363	4	8
5156 823	1	7
5160 554	1	7
5163 200	1	8
164 007	2	8
5219 875	4	8
5225 695	1	
5238 742	2	8
5239 137	2	8
5282 576	1	7

W l gth	N mb t f Ob	M n g W d
5297 407	1	5
5300 152	1	6
5351 261	2	7
5368 616	1	9
5393 375	1	
5394 839	1	4
5396 935	1	7
5426 474	5	8
5432 753	3	7
5460 572	5	9
5471 414	1	8
5474 436	1	8
5477 901	2	7
5482 078	3	7
5490 387	4	8
490 905	3	8
5504 117	1	7
5538 025	3	6
5626 245	2	6
627 859	2	6
5646 322	1	7
5649 304	1	7
5657 067	1	7
5668 593	1	7
5671 071	5	9
567 047	5	J
5689 894	1	8
5698 740	3	8
5700 102	2	7
5703 797	2	8
5707 204	2	8
5716 871	3	7
5727 873	5	9
5731 437	5	9
5737 288	5	9
5 43 645	4	9
5860 075	2	7
5867 785	2	7
Ob	—S S	d G N

## No 265 (Gr 5210a)

LAT + 12

LONG 111

CLASS—I IVb IIIb

Date—1904 April 27 28

W l gth	N mb t f Ob	M n g W l
4065 107	2	7
5009 829	2	6
5036 645	1	7
5043 761	1	7
5045 532	1	7
5066 74		7
5087 289	1	8

W l gth	N mb t f Ob	M n g W d
5134 505	1	8
5134 697	1	8
5139 037	1	8
5140 338	1	
5140 553	1	7
5141 386	1	7
5143 901	2	8
5144 031	1	8
5147 652	2	8
140 018	1	8
5149 964	1	8
5150 363	2	8
5156 823	1	8
5160 54	1	8
5164 007	1	8
5210 059	1	
211 01	1	C
5219 875	2	8
238 712	1	8
5239 137	1	6
5260 561	1	5
5297 407	1	8
5300 152	1	7
306 616	1	8
5426 471	2	9
5132 753	1	6
5460 572	2	J
5470 98	1	4
5471 114	1	8
5477 901	2	
482 078	1	8
5488 374	1	4
5490 387	1	8
5490 005	1	7
5504 117	1	8
5514 753	1	
5517 034	1	1
538 0	1	6
5538 526	1	5
5605 171	1	6
5626 245	1	C
5627 859	2	
5646 322	1	6
5648 796	1	7
5657 687	1	C
5662 374	1	C
5668 593	1	C
5671 071	2	J
56 2 047	2	9
687 063	1	6
5683 694	1	7
5698 746	1	8
5700 402	1	7
5703 797	1	7
5707 204	1	7
5712 996	1	5
5714 380	1	7
5716 071	1	7

W l gth	N mb t f	M W d
5710 795	1	5
5 0 686	1	7
5 27 8 3	3	7
5731 437	2	9
5737 388	2	9
5739 698	1	8
5740 195	1	8
5748 182	1	8
5748 645	1	
5762 479	1	7
5766 550	1	7
57 4 250	1	7
5866 675	1	5
5867 785	1	5
Ob	-SS	d G N

### No 266 (Gr 5209a )

LAT - 13

LONG 105

CLASS—IVa IVb IVc IIIb

Date—1904 April 21 22 23 24 25 26 27 28  
29 30

W l th	N mb t f	M W d m g
4862 029	4	4
4864 919	4	4
4875 671	3	5
4865 107	7	6
5009 829	9	6
5013 479	1	4
5036 645	1	7
5048 761	3	7
045 582	7	4
50 3 056	1	6
5062 066		7
5062 285	3	7
5066 174	3	6
5087 239	5	7
5134 505		8
5134 697	5	5
5136 270	2	2
5136 625	1	6
5138 693	3	3
5138 890	1	3
5139 087	1	8
5140 336	5	5
5140 553	5	7
5141 386	4	6
5143 901	7	5

W l gth	Numb t f n	M n g
5144 081	1	8
5144 847	1	6
5147 652	10	7
5149 013	5	5
5149 964	1	8
5150 363	9	6
5156 823	4	8
5157 163	1	9
5160 551	5	8
5161 853	1	8
5164 007	4	8
5210 059	1	7
5211 015	1	6
5219 875	9	7
5225 695	1	4
5238 42	6	7
5239 137	6	6
5239 992	1	5
5260 561	1	5
5282 576	2	4
5295 955	2	4
5297 407	2	7
5300 152	3	7
5351 261	2	6
5366 616	4	7
5384 833	1	6
5396 935	1	7
5426 474	10	9
5432 753	6	6
5460 572	10	8
5470 298	2	6
5471 411	2	6
5477 901	4	7
5482 078	8	6
5488 374	1	4
5490 36	8	7
5490 905	6	6
5504 117	2	8
5514 753	1	5
5517 034	1	4
5538 025	4	6
5538 526	3	4
5605 171	3	6
5626 245	3	7
5626 463	1	4
5627 859	9	6
5628 867	1	4
5646 322	2	6
5648 796	1	7
5649 804	1	6
5657 677	1	6

W v l gth	N mb t f Ob	W d m g
5662 374	1	6
5668 598	1	6
5671 071	9	8
5672 047	9	7
5637 063	4	5
5689 694	5	7
5698 746	6	7
5700 402	2	7
5703 797	4	7
570 204	5	7
571 996	1	5
5714 380	1	5
5716 671	6	6
5719 795	1	5
5720 666	1	7
5727 271	2	5
5727 873	10	0
5731 427	10	9
5737 288	10	9
5739 698	4	7
5740 195	4	7
5743 182	3	9
5713 045	7	8
5762 479	1	7
5766 550	1	7
5774 250	1	7
5866 0 5	2	5
5867 785	2	5
5900 280	1	4
5908 748	1	8
5918 635	1	1
5922 334	1	6
5941 845	1	10
5966 055	1	6
5978 768	1	6
6039 953	1	8
6057 110	1	6
6064 853	1	6
6081 065	1	10
6085 4 0	1	6
6090 429	1	4
6091 395	1	4
6111 8 2	1	10
6119 740	1	6
6126 435	1	6
613 580	1	4
6199 398	1	6
6210 895	1	8
6252 048	1	6
Obse	-SS d G N	

## No 291 (Gr 5240)

LAT - 22

LONG 5

CLASS—IV<sub>c</sub> III<sub>b</sub> I

Date—1904 May 29 31 June 1

W l gth	N mb t f Ob	M W d g
4965 107	1	6
5009 829	2	6
5045 532	3	6
5066 174	3	7
5134 697	2	
5136 270	2	
5147 652	3	6
5150 863	2	6
5219 875	2	5
5426 474	2	7
5480 572	1	8
5482 078	2	5
5627 859	2	5
5671 071	2	5
672 017	2	5
5716 71	1	6
5727 873		6
5731 437	2	6
5737 288	2	6
Ob	-SS d G N	

## No 297 (Gr 5250)

LAT +19

LONG 229

CLASS—I III<sub>b</sub> II<sub>a</sub> IV<sub>b</sub>

Date—1904 June 13

W l ngth	N mb t f Ob	M W d g
5009 829	1	8
5045 532	1	2
5066 174	1	2
5143 901	1	3
5147 652	1	4
5150 863	1	4
5219 875	1	
5426 474	1	
671 071	1	
567 047	1	
5727 873	1	
5731 437	1	
5737 288	1	
Ob	-SS	

**No 299 (Gr 5253a)**

LAT + 12

LONG 121

CLASS—I IVb IVe IIa IVa

Date—1904 June 14 21 22

W	l	tl	N mb Ob t	f	M W d	g
4965	107		2			
000	829		8		6	
5045	582		2			
5066	171		2			
5134	897		1			
5136	270		1			
5143	901		1		6	
5147	652		8		6	
5150	863		8		6	
5160	419		1		6	
5219	875		1		4	
5426	474		8		6	
5480	572		2			
5490	867		1			
5627	850		3		4	
5671	071		8			
567	047		8			
5	27 873		8		6	
5731	187		8		6	
5787	288		8		6	
Ob			—SS 1 GN			

**No 305 (Gr 5259)**

LAT - 22

LONG 305

CLASS—I III

Date—1904 July 7

W	l	g h	N mb Ob t	f	M W d	g
4965	107		1		8	
5045	582		1		8	
5066	174		1		8	
5143	901		1		8	
5147	652		1		8	
5149	864		1		8	
5482	078		1		8 <sup>h</sup>	
5490	367		1		9	
5490	105		1		7	
5627	850		1		9	
5671	071		1		9	
5672	047		1		9	
5	27 873		1		9	
731	187		1		9	
5732	522		1		9	
573	288		1		9	
Ob			—GN			

**No 306 (Gr 5262a)**

LAT + 16

LONG 263

CLASS—III IVb IVa I

Date—1904 July 5 6 7 8

W	l	gth	N mb Ob t	f	M W d	g
4965	107		3		8	
5009	829		1			
5048	761		8			
5045	582		4		8	
5062	285		1			
5066	174		4		8	
5143	901		4		8	
5147	652		4		8	
5149	864		3		8	
5150	383		1			
5219	875		2		9	
5238	742		1		8	
5239	187		1		8	
5260	561		1		8	
5424	761		1		6	
5426	474		8		9	
5432	53		2		7	
5460	72		3		8	
5477	001		3		8	
5482	078		3		9	
5490	307		2		9	
5490	005		2		8	
5627	850		4		9	
5671	0 1		2		9	
5672	047		2		9	
5727	873		2		9	
5731	48		3		9	
5732	522		2		J	
5787	288		3		9	
Ob			—GN			

**No 308 (Gr 5264a)**

LAT + 13

LONG 151

CLASS—IIa IIIa I

Date—1904 July 11 12 13 15

W	l	gth	N mb Ob t	f	M W d n	g
4965	107		4		7	
5009	829		3		7	
5048	761		1		6	
5045	582		4		7	
5066	174		4		7	
5085	341		1		8	
5087	289		1		8	

W l gth	N mb t	M d
5108 563	1	6
5113 298	1	5
5113 617	1	5
5 43 901	4	7
5147 052	4	7
5150 363	4	7
5157 163	1	6
5180 554	1	6
5163 074	1	6
5219 875	4	9
5238 742	3	7
5239 137	3	6
5243 526	2	7
5366 616	1	6
5126 474	4	9
5132 753	2	7
5460 5 2	1	6
5461 762	3	9
5477 901	3	7
5482 078	1	7
5490 867	3	9
5493 709	1	7
5504 117	1	
5512 013	1	8
5 12 711	1	7
5530 9 17	1	8
5537 928	1	8
5627 859	1	8
5671 071	4	8
5672 047	4	8
5698 746	2	8
5727 673	4	9
5731 437	4	8
5732 5 2	3	8
5737 288	4	)
80 1 518	3	8
5910 475	1	6
5908 055	2	7
5978 768	2	8
6039 953	2	8
6064 853	2	8
6081 60	1	8
6111 872	1	3
6119 740	3	7
61 6 435	3	8
6135 80	1	6
6150 360	3	8
6154 438	2	7
619 1 808	2	9
6210 8 15	2	8
6243 320	2	10
6252 048	1	7
6269 080	1	7
6274 870	2	9
6293 170	1	7
6296 582	1	7
6303 985	1	7
6306 0 1	2	9
6330 816	2	8
6363 090	1	7
6366 707	1	6
6455 820	2	8
6499 168	2	8
6573 030	2	9
6574 468	2	8

Ob —G N

No 314 (Gr 5269a)

LAT — 19

LONG 61

CLASS—IVd IVb

Date—1904 July 20 23 24 26

W l gth	N mb t	M d g
4965 107	3	9
5009 829	4	8
5013 475	1	5
5013 761	2	8
5045 582	4	8
5053 056	1	9
5053 170	1	8
5061 882	1	6
506 295	1	8
5063 3 5	1	6
5061 14	1	5
5066 078	1	8
5066 174	4	8
5070 105	1	6
5085 311		8
5085 608	1	8
5087 230	3	8
5101 790	1	7
5131 505		
5134 607	2	7
5135 3 5	1	5
5136 835	1	5
5136 909	1	5
5139 037	1	
5139 189	1	5
5139 817	1	7
143 901		7
5144 031	1	6
5147 6	4	8
148 851	1	7
5150 309	3	9
51 0 25	1	5
51 0 736	2	8
5156 823	1	(
5157 163	1	(
5157 376	1	6
5160 419	1	6
5161 006	1	6
5163 074	1	5
5163 200	1	
163 585	1	5
5164 216	1	8
5203 118	1	6
5 12 308	1	7
5219 875	4	9
5238 742	3	7
5239 137	3	6
5253 205	1	7

W l th	N mb t f	M n W d n g
5 55 873	1	5
5260 561	1	8
5 72 171	1	7
5320 220	1	7
5338 517	1	7
53 1 261	1	8
5356 270	1	7
5366 616	2	8
5426 474	4	9
543 753	3	7
5460 57	3	5
5461 76	4	9
5477 901	2	7
5182 078	2	7
5490 387	4	9
5490 906	1	7
5512 018		9
5530 997	2	8
5505 171	1	9
5626 245	1	7
5627 559	4	9
5662 874	1	7
5608 598	1	8
5671 071	4	9
5672 047	4	0
5698 748	2	8
5702 878	1	8
5 08 797	1	7
5707 04	1	7
5712 996	1	8
5 18 671	2	8
5717 723	1	8
5 20 686	1	9
5727 873	4	9
5731 437	4	9
5737 88	3	9
73J 698	1	9
5740 195	1	9
5 43 182	3	9
5830 490	1	6
5890 18		8
5903 18	1	7
5922 334	1	8
5938 0	1	8
5941 985	1	7
5944 945	1	6
59 3 386	1	7
5968 055	1	6
5978 768	1	7
5983 785	1	6
5989 510	1	5
5999 436		6
5999 920	1	7
6009 580	1	6
6039 9 3	1	9
6053 912	1	8
6063 080	1	5
6081 685	1	8
6111 872	1	8
6128 485	1	8
6243 320	1	10
6274 870	1	9
6306 0 4	1	10
Ob	-G N	

## No 319A (Gr 5278a)

LAT + 14

LONG 309

CLASS—IIb IIIa

Date -1904 July 28

W l ngth	N mb t f	M n W d n g
5066 078	1	
5066 174	1	
5140 5 8	1	
5143 901	1	
147 652	1	
5150 363	1	
5219 875	1	8
5238 742	1	7
5239 137	1	7
5426 474	1	)
5460 572	1	8
5477 901	1	6
482 078	1	7
5490 367	1	8
5530 907	1	7
5627 859	1	7
671 07	1	7
5672 047	1	7
5727 873	1	8
5731 437	1	8
5737 288	1	8
Ob	-G N	

## No 319B (Gr 5278b)

LAT + 14

LONG 298

CLASS—IIb IIIa

Date—1904 July 28

W l gth	N mb t f	M n W d n g
5066 078	1	
5066 174	1	
5140 553	1	
5143 901	1	
5147 852	1	
5150 363	1	
5219 875	1	8
5238 742	1	7
5239 137	1	7
5426 474	1	9
5460 572	1	8
5477 901	1	6
5482 078	1	6
5490 367	1	8
5530 997	1	7
5627 859	1	7
5671 071	1	7
5672 047	1	7
5727 873	1	8
5731 437	1	8
573 288	1	8
Ob e	-G N	

**No 321 (Gr 5281)**

LAT —17

LONG 295

CLASS—I IIa IIIa IVb

Date —1904 July 30

W	l	gtl	N mb Ob t f	M W d nng
4965	107		1	7
5045	582		1	7
5086	078		1	7
008	174		1	7
5130	989		1	0
5143	901		1	7
147	652		1	8
5150	308		1	8
5160	419		1	7
5219	875		1	8
32	227		1	7
5426	474		1	9
4	010		1	6
5160	572		1	8
5177	901		1	6
5432	0 8		1	7
5490	867		1	8
5 30	J97		1	8
5627	859		1	7
5671	071		1	7
5672	047		1	7
5727	873		1	9
781	437		1	9
5737	288		1	9
5739	098		1	8
5740	195		1	8
Ob			—G N	

**No 326 (Gr 5285a)**

LAT +13

Lo G 156

CLASS—IVa IVb IIIa IIb

Date—1904 August 6 7

W	l	gth	N mb Ob t f	M W d g
4965	107		2	6
5045	582		2	6
5053	056		1	6
5066	078		2	6
50 8	174		2	6
5085	341		1	4
5087	239		1	6
5148	901		1	6
5147	852		2	6

W	l	th	N mb Ob t f	M W d g
	150	863	2	
	5219	875	2	8
	5238	742	1	7
	5289	137	1	6
	5304	355	1	6
	5320	220	1	5
	5126	474	2	9
	515	640	1	6
	5460	57	2	8
	5477	901	1	6
	5182	078	1	7
	5490	867	2	8
	5193	709	1	
	5530	097	1	7
	5547	215	1	6
	627	850	2	8
	5688	598	1	7
	5671	071	2	8
	5672	017	2	8
	5698	718	1	6
	5716	871	1	7
	5727	878	2	9
	5731	437	2	9
	737	288	2	J
	5739	698	1	7
	5740	195	1	7
	5748	110	2	8
	57(2	479	1	6
Ob			—G N	

**No 328 (Gr 5286)**

LAT —13

LONG 110

CLASS—IIa IVb IVa IVe I

Date—1904 August 9 10 11 13

W	l	gtl	N mb Ob t f	M W l g
4965	107		1	7
5009	829			6
5043	761		1	6
5045	582		4	7
50 8	056		1	6
5062	285		1	7
086	078		4	
5086	174		1	7
085	608		1	8
5087	239		2	8
5134	505		1	6
5139	817		1	6
5143	901		4	7



W l gth	N mb t f	M n g
Ob	W d	
5147 652	4	8
5150 868	4	7
5160 419	1	7
5168 074	1	6
5219 875	4	8
5288 74	3	7
5289 137	3	7
5243 528	1	8
5280 561	3	7
5280 540	1	6
5282 576	1	7
5320 220	1	7
5428 4 4	4	8
5432 753	1	7
4 7 640	1	6
5460 572	5	10
5477 901	2	7
5482 078	3	7
5490 387	4	8
5493 709	3	7
5530 997	1	7
5547 215	1	7
5603 93	1	6
5 25 541	1	7
5627 859	4	8
5671 071	4	7
5672 047	4	7
5689 694	1	8
5718 671	1	7
5727 878	4	8
5731 437	4	8
5737 288	4	8
5762 685	4	8

Ob -G N

W l gth	N mb t f	M n g
Ob	W d	
5086 174	4	8
5087 239	4	7
5139 817	1	7
5143 901	4	8
5147 652	4	8
5150 736	4	8
5160 419	1	8
5219 875	4	8
5288 742	4	7
5289 137	4	7
5200 561	1	7
5426 474	4	7
5460 572	4	8
5482 078	2	7
5490 387	3	8
5493 709	3	7
5530 997	1	7
5627 859	4	8
567 071	4	7
5672 047	4	7
5727 873	4	8
5731 437	4	8
5737 288	4	8
5762 685	2	7

Ob -G N

## No 338 (Gr 5295a)

LAT + 13

LONG 318

CLASS—I IVa

Date—1904 August 23

W l gth	N mb t f	M n g
Ob	W d	
5009 829	1	
5045 582	1	
5134 697	1	
5136 270	1	
5147 652	1	
5150 388	1	
5426 474	1	
5671 071	1	
5672 047	1	
5727 873	1	
5731 437	1	
5737 288	1	

Ob -S S

## No 333 (Gr 5291a)

LAT - 18

LONG 59

CLASS -IVa IVb

Date—1904 August 14 15 16 17

W l gth	N mb t f	M n g
Ob	W d	
4985 107	4	7
5009 829	4	7
5045 82	4	7
5053 056	2	7
5062 285	2	7
5068 078	4	8

**No 339 (Gr 5296 )**

LAT — 18

LONG 279

CLASS—V IIIb

*Date*—1904 August 24 28 29 30

W	l	gth	N Ob	mb t	f	M W d	n g
4965	107			3			7
5009	829			4			5
5013	479			1			4
5016	220			1			3
5048	761			2			7
504	582			4			7
50	3 0 8			2			8
50C1	882			2			6
5062	285			1			6
5063	355			1			
	068 078			2			8
5086	174			4			7
5085	668			2			7
5087	239			2			8
5134	05			2			5
5134	697			3			6
5134	849			1			6
513	355			1			C
513C	270			1			8
5139	087			2			C
5139	189			2			6
5139	817			2			6
5143	764			1			(
5148	901			2			(
5147	652			4			8
5150	883			4			6
51	8 829			1			7
5157	183			1			5
5160	138			2			7
5160	419			2			8
5163	074			2			7
5219	875			4			7
52	4 471			1			6
5225	198			1			7
5225	695			1			3
5238	712			2			8
5239	197			2			7
5260	61			2			7
5280	158			1			(
5282	76			2			7
5331	641			2			7
5338	517			1			6
535C	270			1			7
5366	618			1			7
542C	474			1			7
5432	758			2			7
	438 259			1			5
5438	507			1			4
5457	640			1			5
5457	701			1			5
5460	572			4			9
5470	802			1			8
5470	883			1			8
5474	436			1			6
	477 901			2			7
5482	078			3			8
5490	307			3			8
5490	905			1			7
5493	709			4			7

W	l	g <sup>th</sup>	N <sup>mb</sup> Ob	t	f	M <sup>d</sup> W	g
5491	879		1			5	
5504	117		1			8	
5512	013		1			6	
5512	741		1			6	
5514	753		1			5	
5516	960		1				
5517	034		1			5	
5530	997		1			7	
537	028		1			6	
538	02		1			6	
5547	215		1			6	
5628	24		1			5	
562	859		4			8	
5628	667		1				
5682	874		1			7	
56	1071		3			8	
672	017		3			7	
5689	094		1			9	
5698	716		1			7	
5700	508		1			6	
5707	204		1			7	
5712	916		1			7	
5716	071		1			7	
720	616		1			7	
5727	83		4			3	
531	417		4				
87	88		4			4	
5731	698		1			7	
5740	185		1			7	
713	182		1			8	
762	635					8	
5774	20		1			6	
5778	358		1			9	
586	675		1				
586	7785		1				
5819	518		1				

**No 343 (Gr 5298a )**

Lat - 1

LONG 256

CLASS—IIIb IV/ IVa IV /

*Date—1904 August 27*

W	l	g <sup>th</sup>	N Ob	l t	f	M W	l	g
40	5	10		1				
00	9	29		1			3	
50	4	58		1			2	
50	6	174		1			2	
50	8	568		1				
51	3	4897		1			4	
51	3	70		1			4	
	14	052		1			4	
52	1	985		1			5	
54	2	474					4	
56	2	7850		1			4	
57	2	7873		1			3	
57	3	137		1			3	
7	3	288		1			3	
			Ob	—	5			
					5			

## No 344 (Gr 5300a)

LAT -- 19

LONG 229

CLASS—IIIb IVc IVb I

Date—1904 August 28 Sept 1

W l th	N mb f Ob t	M n g W d g
4865 107	1	7
5009 829	2	6
5043 81	1	7
5045 92	2	6
5053 056	2	6
0 1882	1	6
5062 285	1	6
5068 078	1	8
5066 174	2	6
5070 18	1	2
5085 888	1	7
5 87 239	1	8
5134 505	1	5
5134 697		5
5135 855	1	6
5138 270	1	2
5139 037	1	6
5139 189	1	6
5139 817	1	6
143 901	2	5
5147 6 2		7
5150 363	2	6
5160 188	1	7
5160 419	1	7
5168 071	1	7
5219 875	2	7
5 88 742	1	8
289 187	1	7
5200 561	1	7
5 8 576	1	7
5881 641	1	7
5866 616	1	7
5426 471	2	7
5432 753	1	7
5460 5 2	1	9
5477 901	1	7
548 078	1	8
54 0 367	2	6
5490 905		5
5493 709	1	7
56 7 8 9	2	7
5671 071	2	7
5672 047	2	6
57 7 873	2	6
5 31 437	2	8
5737 288	2	8
5743 645	1	4
5782 635	1	8
5786 5 0	1	4

Ob rv —SS d G N

## No 354 (Gr 5313a)

LAT -- 20

LONG 343

CLASS—I IIIb IVb IVa

Date—1904 Sept 20 22 24

W l gth	N mb f Ob t	M n g W d g
4862 0 9	1	1
4865 107	2	3
5009 829	3	3
5023 372	1	5
5045 582	3	5
5053 170	1	4
5068 174	3	3
5087 39	1	
5113 298	1	
5134 697		3
5138 270	2	3
5138 690	1	3
5143 901	2	4
5147 652	3	6
5150 363	3	3
219 875	3	8
52 4 471	1	7
5225 695	1	5
5238 742	1	7
5239 137	1	7
51 6 474	3	7
432 7 8	1	4
5400 572	2	7
5477 901	1	7
548 078	2	6
5190 367	2	7
5490 905	1	3
5627 859	3	5
5671 071	3	6
672 047	3	6
5727 873	3	7
5731 437	3	7
5737 288	3	7
5743 645	1	5

Ob —SS d G N

## No 356 (Gr 5317a)

LAT -- 23

LONG 327

CLASS—I IIc IVb

Date—1904 Sept 23 25

W l gth	N mb f Ob t	M n g W d g
4875 671	1	6
4876 080	1	7
4887 137	1	6
4887 381	1	6
1965 107	2	8
5009 829	2	8
5045 582	2	8
5053 056	1	7
5068 174	2	8
5087 239	1	8
5113 298	1	7
5113 617	1	7

W l gth	N b f Ob t	M W d n g
5134 697	1	7
5139 817	2	7
5143 901	2	7
5147 652	2	8
5150 803	1	8
5219 875	2	8
52 4 471	2	7
5238 4	2	7
5239 137	2	7
5230 561	2	7
5282 570	1	6
5426 474	2	9
5432 58	2	7
5460 572	2	8
5477 901	1	7
5482 078	1	7
5490 807	2	8
50 6 245	1	5
50 7 859	2	8
51 23 867	1	7
671 071	2	7
567 047		7
5727 6 3	2	9
5 31 437	2	9
5737 98	2	9
739 198	1	7
5740 195	1	7
5743 182	2	8
Ob	-G N	

## No 357 (Gr 5316a)

LAT + 31

LONG 244

CLASS—I IIIb IIIa IVb IVa

Date—1904 Sept 28 29 30

W l gth	Numb Ob t	f M n g
480 788	1	5
4965 107	2	7
5000 829	3	7
045 58	3	6
5053 056	1	7
5086 1 4	2	7
5087 39	2	6
5134 697	1	4
5138 270	1	4
5143 901	1	5
5147 652	3	7
5150 803	3	0
5 19 875	3	7
5 30 511	1	7
5426 174	3	8
5432 753	1	7
5460 5	2	8
5190 307	2	8
5438 09	1	
50 7 859	2	8
5671 071	3	7
5672 047	3	6
57 7 878	3	8
5731 437	3	8
5 37 88	3	8
5743 045	1	4
Ob	-S S	1 G N

## No 360 (Gr 5318)

LAT — 14

LONG 245

CLASS—I IIIb

Date—1904 Sept 26

W l gth	N mb f Ob t	M W d n g
5009 62	1	4
5045 582	1	4
5066 174	1	4
085 668	1	4
5134 697	1	3
5136 270	1	3
5143 901	1	5
5147 652	1	5
5 19 875	1	
4 6 174	1	
5071 071	1	
5072 047	1	
57 7 873	1	
5731 4 7	1	
737 288	1	
Ob	S S	

## No 361 (Gr 5319a)

LAT — 21

LONG 160

CLASS—IVb IIc I

Date—1904 Oct 1

W l gth	N b f Ob t	M W d n g
480 810	1	1
180 310	1	
4965 107	1	4
5001 165	1	6
5009 829	1	6
045 582	1	4
5053 170	1	4
5086 174	1	
5134 697	1	4
5136 270	1	4
5143 901	1	5
5147 652	1	7
5150 803	1	4
5219 875	1	7
225 695	1	5
5426 474	1	8

W l th	N mb f Ob rv t	M n W d g
5432 753	1	5
5460 572	1	5
5482 078	1	5
5627 8 9	1	6
5671 071	1	7
5672 04	1	8
727 873	1	8
731 437	1	8
5737 288	1	8
5809 518	1	6
5978 768	1	5
6039 953	1	5
6061 853	1	5
6111 87	1	5
6150 360	1	4
6199 308	1	4
6 01 7	1	4
6252 048	1	5

Ob —S S

## No 363 (Gr 5320a)

LAT + 24

LONG 102

CLASS—I IIb

Date—1904 Oct 6

W l gth	N b f Ob t	M W d g
496 107	1	
5009 829	1	
5045 582	1	
5066 174	1	
5087 239	1	
5113 298	1	
5113 617	1	
5147 65	1	
5150 363	1	
5219 875	1	
5238 742	1	
239 137	1	
5126 474	1	
5432 753	1	
5460 572	1	
5490 867	1	
5627 859	1	
5671 071	1	
5672 047	1	
5727 8 3	1	
5731 43	1	
5737 288	1	

Ob —G N

## No 365 (Gr 5321a)

LAT + 17

LONG 133

CLASS—IIIb IVd IVb IVa

Date—1904 Oct 6

W l gth	N mb f Ob t n	M W d n g
4965 107	1	
5009 829	1	
5045 582	1	
5066 174	1	
5087 239	1	
5113 298	1	
5113 617	1	
5147 652	1	
5150 363	1	
5219 875	1	
5238 742	1	
5239 137	1	
5426 474	1	
5432 753	1	
5460 572	1	
5490 867	1	
5627 859	1	
5671 071	1	
5672 017	1	
572 873	1	
5731 137	1	
5737 288	1	

Ob —G N

## No 368 (Gr 5325a)

LAT + 13

LONG 23

CLASS—IVa IVb IVd

Dat —1904 Oct 11 13 17 18

W l gth	N mb f Ob t	M n W d g
4862 0 9	3	5
4864 919	2	6
4865 107	1	6
5009 829	4	6
5015 582	3	6
5066 174	2	6
5073 637	1	5
5087 239	1	5
5113 298	1	5
5113 617	1	5
5143 901	4	6
5147 652	4	8
5 49 013	1	5
5150 363	4	6
5219 875	4	7
5260 561	1	6

W l gth	N mb t f	M n g
Ob		W d
5272 171	1	6
5426 474	4	9
5432 753	1	6
5460 572	3	7
5470 298	1	7
5482 078	2	7
5490 807	2	7
5627 859	2	7
5671 071	4	7
5672 047	4	6
5727 873	4	8
5731 437	4	8
737 288	4	8
713 645	2	7

Ob -SS d G N

## No 376 (Gr 5339)

LAT + 11

LONG 216

CLASS—I IIIb IVb IVd

Date—1904 Oct 26 27 28 29 31

W l gth	N mb t f	M n g
Ob		W d
4862 029	1	5
4882 783	2	5
4883 833	1	6
4884 910	1	5
48 0 322	1	7
4965 10	4	5
5009 8 J	7	6
5043 7(1	1	7
5045 582	5	5
5066 174	1	6
5087 289	2	
148 901	8	4
5147 652	5	8
5150 868	4	5
5219 875	5	6
5426 474	5	8
5180 572	3	
5490 307	2	
56 7 859	3	7
5671 071	5	7
5672 047		6
5 27 878	5	8
5731 437	5	8
5737 88	5	8
5743 645	2	6
6097 505	1	7
6111 873	1	7
6119 740	1	7
6126 485	1	7
6135 580	1	8

W l gth	N mb t f	M n g
Ob		W d
6150 860	1	9
6199 398	1	9
6210 895	1	9
6224 715	1	8
6243 320	1	10
6252 048	1	9
6271 8 0	1	9
6290 427	1	7
6308 985	1	8
6308 024	1	9
6312 456	1	6
6330 316	1	8
6363 090	1	8
6366 564	1	7
6366 707	1	7
6455 820	1	7

Ob rv -SS d G N

## No 381 (Gr 5343a)

LAT -17

LONG 130

CLASS—I IVb IIIb IIIa

Date—1904 Nov 2 3

W l gth	N l t f	M n g
Ol		W d
4882 029	1	5
4882 788	1	5
4884 910	1	7
4965 107		6
5000 0	1	
5009 829	2	6
504 582	2	6
5053 056	1	
5066 174	1	6
5087 289	1	
5104 204	1	
5104 614	1	
5113 298	1	
5113 617	1	
5143 901	2	5
5147 65		7
5160 868	2	6
5219 875	2	6
54 6 474		8
5460 572	2	5
548 078	2	5
5627 859	2	5
5671 071	2	7
567 047		6
57 7 878		8
5781 437	2	8
5787 288	2	7
5743 645	1	7

Ob v s SS d G N

## No 383 (Gr 5351a)

LAT -16

LONG 60

CLASS—IVa IVb IVc I

Date—1904 Nov 4 5 6 7 9

W	l	gth	N Ob	mb t	f	M W d	g
4862 029				1			6
4863 833				3			
4864 919				1			6
4868 451				1			5
4870 99				1			5
4875 671				1			5
4876 060				1			5
4905 107				2			7
5009 829				5			7
5045 582				5			7
5066 174				3			
5087 289				2			7
5143 901				1			
5147 652				5			7
5150 868				5			7
5219 875				5			
5426 474				5			
5482 078				1			
5627 859				3			
5671 071				4			
5672 047				4			
5727 873				5			
5731 487				5			
5737 288				5			
5890 518				1			8
5938 270				1			8
6068 080				1			5
6064 853				1			6
6081 665				1			7
6119 740				1			7
6126 485				1			7
6189 398				1			8
6216 567				1			7
6243 320				1			10
6252 048				1			9
6253 322				1			6
6300 024				1			6
6330 316				1			8
6363 090				1			8
6445 820				1			6
6499 168				1			7

Ob —SS d GN

## No 390 (Gr 5356a)

LAT —22

LONG 300

CLASS—IIa IIIa IIIb IVa I

Date—1904 Nov 13 14 15 16 17 18

W	l	gth	N Ob	mb t	f	M W d	g
4717 756				1			5
4820 98				1			5
4827 637				1			7
4827 804				2			7
4851 689				2			7
4859 316				1			6
4862 029				2			5
4862 788				1			4
4863 833				1			4
4864 919				1			5
4870 323				1			6
4901 152				1			6
4905 310				1			5
4921 963				1			6
4965 107				6			6
5001 165				2			6
5009 829				6			7
5016 340				2			5
5025 027				1			6
5043 761				1			5
5045 582				6			6
5053 056				4			6
5066 174				6			6
5087 104				1			6
5087 289				3			6
5092 058				4			7
5108 563				2			6
5134 697				2			4
5136 270				2			4
5143 901				6			6
5147 652				6			7
5150 868				6			7
5152 361				1			8
5156 823				2			6
5158 152				2			6
5219 875				6			7
5225 695				2			6
5260 561				3			6
5282 5 6				2			6
5331 641				2			5
5426 474				6			8
5432 753				2			5
5460 572				6			7
5477 901				2			6
5482 078				5			6
5490 867				6			6

W l gth	N mb f Ob t	M ng W d
5490 905	1	5
5493 709	2	6
5547 215	1	6
5627 859	6	7
5671 071	6	7
5672 047	6	7
5703 797	1	6
5727 878		8
5781 437	6	7
5787 288	6	8
5782 635	1	6
5892 608	1	6
5899 518	8	8
5903 748	1	6
5922 834	2	8
5933 283	1	8
5941 845	1	6
5944 530	1	7
5953 856	1	6
5966 055	1	5
5978 708	2	7
6007 540	1	6
6039 953	8	8
6064 853	8	8
6081 665	2	8
6090 429	1	5
6091 395	2	8
6111 8 2	2	8
6119 740	2	7
6126 135	2	7
6150 300	2	8
6199 398	3	8
6243 055	2	8
6243 320	3	8
6252 048	3	8
62 4 870	2	8
6285 384	1	8
6296 582	2	8
6303 700	1	7
6303 985	1	9
6308 024	2	8
6330 316	2	8
6363 090	2	8
6455 820	1	7
6459 168	1	7
6573 080	2	9
6574 468	2	9
6608 280	2	7
6625 276	1	9
6703 820	1	6
6743 381	1	9
6771 310	1	8
6840 086	1	8
6842 945	1	6
6857 515	1	6
6881 983	1	5
6883 325	1	5

Ob —S S nd G N

## No 395 (Gr 5360a)

LAT + 10

LONG 219

CLASS—I IVa IIb IVb

Date—1904 Nov 20 21 22

W l gth	N mb f Ob t n	M n W d ng
4985 107	3	6
4975 30	1	5
4975 568	1	5
5009 829	8	7
5045 582	3	6
50 3 056		6
5066 174	3	6
087 239	2	6
092 053	1	6
5134 697	1	4
5136 270	1	4
5143 901	3	6
5147 652	3	7
1 0 363	3	6
51 2 3(1	1	7
5219 875	3	7
5 25 695	1	6
5260 561	1	6
5426 174	3	8
132 753	1	
5460 572		6
5482 078	1	5
5490 307	2	6
5627 859	3	7
5671 071	3	7
5672 047	3	6

Ob v —S S d G N

## No 396 (Gr 5361)

LAT + 10

LONG 234

CLASS—I IIIb

Date—1904 November 19

W l gth	N mb f Ob t	M n W d ng
4863 883	1	4
4870 328	1	6
5009 829	1	6
5015 582	1	5
066 174	1	6
5134 697	3	4
136 270	1	4
5138 518	1	4
5138 690	1	4
113 901	1	5
5147 652	1	7
5219 875	1	4
5426 474	1	6
562 859	1	5
5671 071	1	4
5672 047	1	4
5687 083	1	5
572 873	1	6
5781 437	1	6
5797 288	1	6

Ob —S S



## No 398 (Gr 5364 )

LAT + 21

LONG 186

CLASS—I IIIb IIIa IIc

Date—1904 Nov 28 29

W l th	Numb Ob t	f	M n W d nng
4882 783	1		4
49 5 107	2		5
5008 825	1		4
5009 829	2		6
5043 761	1		8
5045 582	1		4
5066 174	1		5
5085 841	1		7
5087 289	1		7
5148 901	1		7
5147 652	2		8
51 0 388	2		7
5219 8 5	2		7
5225 695	1		6
5426 474	2		7
5460 572	1		8
5490 367	1		8
5627 859	2		7
5671 071	2		6
5672 047	2		6
5727 873	2		7
5731 437	2		7
5787 288	2		
Ob	-SS	d GN	

## No 399 (Gr 5366a )

LAT + 28

LONG 246

CLASS—I IIIb

Date 1904 Nov 23 24 25 26

W l th	N mb Ob t	f	M n W d n g
4827 604	1		7
4851 689	1		8
4862 029	2		5
4862 788	2		5
4864 919	1		
4865 798	1		4
4901 152	1		4
4905 310	1		4
4965 107	4		5
5009 829	4		7
5043 761	1		7

W l gth	N mb Ob t	f n	M n W d n g
5045 582	4		6
5058 056	3		6
5066 174	4		6
5085 841	1		7
508 289	2		7
5120 592	1		5
513 697	3		5
5136 270	3		5
5143 901	3		
5147 652	4		7
5150 383	4		7
5160 419	1		6
5188 079	1		5
5219 875	4		7
5224 239	1		7
5225 695	2		6
5238 742	2		6
5239 137	2		6
5280 561	2		6
5282 576	1		6
5331 841	1		5
5358 806	1		5
5426 474	4		8
5432 753	3		5
5457 640	1		5
5457 701	1		5
5460 572	4		(
5482 078	2		
5490 367	3		6
5493 701	1		5
5627 859	4		6
5671 071	4		7
5672 047	4		6
5708 7 7	1		6
5707 265	1		6
727 873	4		8
5731 437	4		7
5737 288	4		8
5900 280	1		7
5903 748	1		5
5918 635	1		7
5918 773	1		7
5923 865	1		7
5938 270	1		7
5941 845	1		7
5941 985	1		7
5978 768	1		7
6005 770	1		3
6039 953	1		7
6064 853	1		5
6081 665			8
6085 470	1		5
6090 429	1		7
6091 395	1		5
6111 872	1		8
6119 740	1		8
6119 970	1		8
6128 435	1		8

W	l	gth	N mb Ob t	f	M W d	g
6135 985			1		7	
6150 860			1		8	
6154 488			1		7	
6199 898			1		9	
6210 895					8	
6216 567			1		1	
6240 863			1		5	
6248 820			1		10	
6252 048			1		5	
6269 080			1		5	
6271 486			1		5	
6274 870			1		7	
6285 384			1		6	
6298 170			1		6	
6296 582			1		5	
6303 985			1		8	
6306 024			1		9	
6312 456			1		5	
6327 820			1		4	
6330 816			1		6	
6333 090			1		8	
6366 707			1		7	
6384 886			1		3	
6392 751			1		5	
6405 980			1		4	
6455 820			1		6	
6464 897			1		5	
6483 027			1		5	
6499 168			1		5	
6514 415			1		5	
6554 470			1		4	
6578 090			1		8	
6574 468			1		7	
6581 452			1		4	
6598 848			1		4	
6599 853			1		6	
6607 215			1		4	
6625 273			1		7	
6630 70			1		4	
6647 205			1		3	
6648 870			1		3	
6661 920			1		4	
6699 913			1		5	
6710 570			1		4	
6743 881			1		8	
6771 810			1		3	
6807 103			1		3	
6815 210			1		3	

Ob —b S d G N

## No 407 (Gr 5373)

LAT + 12

LONG 176

CLASS—I IVb IIIb

Date—1904 Dec 1

W	l	gth	N mb Ob t	f	M W d	g
4862 029			1		5	
4862 783			1		4	
4864 919			1		5	
4965 107			1		4	
4977 833			1		5	
5009 829			1		6	
5013 479			1		6	
045 8			1		4	
5066 1 4			1		4	
5147 6 2			1		7	
5150 368			1		4	
5219 87			1		6	
326 331			1		5	
128 474			1		7	
7480 57			1		5	
56 7 8 9			1		6	
5671 071			1		6	
5672 017			1		4	
5 27 873			1		6	
731 487			1		5	
5737 288			1		6	

Ob —b S

## No 413 (Gr 5381a)

LAT + 21

LONG 353

CLASS—IVa IVb

Date—1904 Dec 6

W	l	gth	N mb Ob t	f	M W d	g
191 107			1		6	
5009 829			1		4	
5013 761			1		6	
504 582			1		6	
5053 056			1		7	
086 174			1		6	
508 841			1		6	
5087 239			1		7	
5130 037			1		6	
5140 53			1		6	
5147 652			1		7	
5150 363			1		7	
5219 875			1		3	
5260 561			1		6	
426 174			1		8	
5460 572			1		7	
5400 367			1		8	
5627 8 9			1		7	
5671 071			1		7	
5 72 047			1		7	
5727 873			1		8	
5731 437			1		8	
5737 288			1		8	
5743 645			1		8	

Ob —G N

**No 414 (Gr 5383a)**

LAT + 17

LONG 336

CLASS—IIIb IVe IVb IIIa IVa

Date—1904 Dec 6 10 12

W l gth	N mb f Ob t	M n W d g
4862 783	1	5
4866 465	1	5
4878 440	1	4
4898 080	1	5
4965 107	2	6
5009 8 9	8	7
5043 761	2	6
5045 582	3	6
50 3 056	2	7
5066 174	3	6
5085 841	2	6
5087 289	2	7
189 087	2	6
5140 553	1	6
5140 992	1	6
5147 652	3	7
5150 363	3	7
5209 949	1	7
5210 059	1	7
5219 875	3	8
5260 561	2	6
5300 929	1	6
5420 510	1	5
5426 474	3	8
5432 753	1	5
5460 572	3	7
5490 367	2	8
562 859	3	6
5671 071	3	7
5672 047	3	7
5703 797	1	6
570 204	1	7
5 27 873	3	7
5731 437	3	7
5737 288	3	8
5743 645	3	7

Ob —SS d G N

**NO 416A (Gr 5837a)**

LAT + 9

LONG 355

CLASS—IIc IIIb I

Date—1904 Dec 9

W l gth	N mb f Ob t	M n W d g
486 029	1	6
4862 783	1	5
4864 919	1	8
4965 107	1	4
5009 829	1	8
5016 340	1	6
5045 582	1	4

W l gth	N mb f Ob rv t	M n W d ng
5066 1 4	1	5
5140 992	1	4
5147 652	1	7
5150 363	1	6
5164 724	1	4
5219 875	1	7
5225 695	1	7
5426 474	1	8
5460 572	1	5
5482 078	1	5
5627 8 9	1	6
671 0 1	1	7
5672 047	1	6
5703 797	1	7
5707 265	1	5
5727 878	1	6
5731 437	1	5
5737 288	1	6

Ob —SS

**No 418 (Gr 5389a)**

LAT + 13

LONG 291

CLASS—I IVa IVb IIa

Date—1904 Dec 11 13

W l gth	N mb f Ob t	M n W d ng
4862 783	1	4
4863 883	1	4
4864 919	1	6
4865 798	1	4
4965 107	2	4
5009 829	1	5
5028 308	1	6
5045 582	1	5
5066 174	1	6
5140 992	1	4
5147 652	1	7
5150 363	1	4
5219 875	1	6
5225 695	1	6
5420 510	1	6
5426 474	1	8
5460 572	1	5
5627 859	1	6
5671 071	1	7
5672 047	1	5
5703 797	1	5
5 07 204	1	5
5727 878	1	5
5731 437	1	5

W l gth	N mb Ob rv t	f	M W l	g
5737 288	1		5	
6243 320	1		9	
6274 370	1		6	
6285 384	1		7	
6303 385	1		4	
6306 0 4	1		9	
63 7 820	1		4	
6330 316	1		7	
6363 090	1		7	
6455 320	1		6	
6469 050	1		4	
6482 098	1		4	
6554 470	1		5	
6555 700	1		6	
6573 030	1		8	
6599 353	1		6	
66 5 276	1		5	
6630 270	1		5	
Ob	-S S	d G N		

W l gth	N b Ob t	f	M W d	g
5800 929	1		5	
5420 510	1		7	
5426 474	3		8	
5460 572	3		6	
5461 762	1		6	
5482 078	1		6	
5490 367	3		6	
5490 905	3		5	
553 968	1		6	
56 7 859	3		7	
5671 071	3		7	
5672 047	3		6	
5708 797	3		6	
5707 204	3		7	
5727 873	3		6	
781 437	3		6	
5737 288	3		8	
5743 645	3		7	
5866 675	3		5	
5867 785	1		4	
Ob	-S S			

## No 419 (Gr 5390)

LAT + 18

LONG 268

CLASS—IIa IVe IVb IIIa V

Date—1904 Dec 14 15 16

W l th	N mb Ob t	f	M W d	g
4863 333	1		7	
4864 919	3		7	
4920 047	1		6	
4965 107	3		5	
5009 829	3		6	
5011 119	1		6	
017 762	1		5	
5029 208	1		5	
5 3 674	1		6	
5045 582	3		5	
5066 174	3		6	
508 239	1		6	
5130 543	1			
5134 697	1		5	
5 36 270	2		8	
5147 652	3		7	
5150 363	2		5	
C2 90	1		5	
5219 875	3		6	
5225 695	3		6	
5300 152	1		5	

## No 439 (Gr 5413a)

LAT - 15

LONG 76

CLASS—IIIb IIc IIa

Date—1904 Dec 31 and 1905 Jan 4

W l gth	N mb Ob t	f	M W d	g
4862 0 9	1		5	
486 783	2		4	
4874 976	1		5	
4965 107	2		5	
5009 829	2		6	
5016 340	2		6	
5049 761	1		6	
5045 582			7	
5066 174	1		6	
5133 870	1		6	
5134 697	1		5	
5136 270	2		6	
5138 090	1		4	
5143 901	1		6	
5147 652	2		8	
5150 363	1		5	
5156 823	1		6	
5219 875	2		7	
5225 695	2		6	

W l gth	N mb t f	M d g
Ob		
5426 474	2	8
5430 572	2	8
5490 367	2	5
56 7 859	2	6
5671 071	2	7
672 047	2	6
5708 797	1	5
5707 204	1	6
5727 873	2	6
5731 437	2	6
5737 288	2	8
5743 645	2	7

Ob —S S

**No 443**

LAT — 18

LONG 325

CLASS—I IIIb IVd IVb

Date—1905 Jan 9

W l gth	N mb t f	M n d ng
Ob		
4862 029	1	5
4862 783	1	4
4864 919	1	6
4914 702	1	5
4965 107	1	4
5009 8 9	1	6
5016 340	1	4
5045 582	1	4
5053 0 6	1	4
5066 174	1	6
5134 697	1	4
5136 270	1	4
5147 65	1	7
5219 875	1	6
5420 510	1	6
5428 474	1	6
5627 859	1	5
5671 071	1	5
5672 047	1	4
5708 797	1	6
5707 204	1	7
5727 873	1	4
5731 437	1	4
5737 288	1	7
5743 645	1	5

Ob —S S

**No 447**

LAT + 21

LONG 255

CLASS—IVa IVb

Date—1905 Jan 10 12

W l gth	N mb t f	M d g
Ob		
4965 107	2	6
5009 829	2	7
5043 761	1	5
5045 582	2	5
5053 056	1	8
5066 174	2	6
5085 341	1	7
5087 239	1	6
5 30 543	1	5
5134 697	1	4
5136 270	1	5
5138 690	1	4
5143 901	1	7
5147 652		8
5150 363	1	7
5156 823	1	4
5157 163	1	5
5160 138	1	4
5219 875	2	8
5225 695	1	6
5260 561	1	7
5426 474	2	8
5457 640	1	4
5490 3 7	2	7
5490 905	1	5
5538 025	1	4
5538 788	1	4
5627 859	2	7
5671 071		7
5672 047	2	6
5700 40	1	5
5 08 797	2	(
5707 204	1	7
5727 873	2	7
5731 437	2	7
5737 288	2	8
5743 645	2	7
5866 675	1	5
5867 785	1	6

Ob rv —S S nd G N

**No 449**

LAT + 9

LONG 231

CLASS—IIIa

Date—1905 Jan 11 13 14 15 16  
17 18 19

W l gth	N ml Ob t	f	M W d	g
4862 029	4		5	
4862 783	1		4	
4864 919	4		7	
4870 3 3	1		6	
487 671	2		7	
4885 284	1		5	
4918 803	2		6	
4915 414	1		6	
4928 511	1		6	
496 107	7		6	
5009 8 0	8		8	
5016 840	4		6	
50 3 052	1		5	
043 761	2		6	
5044 011	1		5	
5045 582	8		6	
5058 056	4		6	
5060 174	7		(	
5085 941	1		(	
5087 289	4		7	
5106 (23	1		5	
5116 344	1		5	
51 7 071	1			
5118 112	1		5	
513 843	1		5	
5134 697	2		5	
5136 270	3		5	
5138 518	2		7	
5140 553	3		7	
5140 992	2			
5147 6 2	8		7	
5150 808	7		6	
5156 828	1		4	
5160 419	1		4	
5168 074	1		4	
5210 875	8		7	
52 5 695	3		6	
5238 712	3		8	
239 137	1		3	
5 0 561	5		6	
5426 474	8		8	
5480 572	8		7	
5471 414	1		4	
5477 901	1		5	
548 078	2		5	
5490 367	8		7	
5490 905	3		5	
5538 025	1		5	

W l gth	N mb Ob t	f	M W l	g
5 38 5 6	1		3	
5627 859	8		7	
5671 071	8		7	
5672 047	8		6	
5680 694	1			
5700 508	1		5	
5703 797			6	
5707 204	3		7	
5727 873	8		7	
5731 437	8		7	
5737 288	8		8	
5713 645	3		6	
5766 550	1		6	
5808 675	1			
5867 85	2		7	
Ob	SS	d GN		

**No 450**

LAT + 9

LONG 225

CLASS—IIIa

Date—1905 Jan 17 1)

W l gth	N l Ob t	f	M V l	g
4305 107			7	
5009 829			8	
5015 82	2		7	
5058 056			7	
5066 171			(	
508 239	2		7	
5138 518	1		7	
5140 3	2		7	
5117 6 2	2		7	
51 0 363	2		7	
5219 875	2		6	
5238 712	2		8	
5200 561			(	
5426 474	2		8	
5460 572	2		8	
5490 807	2		8	
5627 859	2		7	
571 071	2			
5672 017			7	
57 7 873	2		8	
5731 43			8	
5737 288			8	
5743 645	1		7	
5766 550	1		6	
5807 785	1		7	
Ob	- GN			
	8			

**No 451**

LAT + 10

LONG 219

CLASS—IIIa

Date—1905 Jan 19

W	l	h	N mb Ob t	f	M W d	g
4965	107		1		7	
5009	829		1		8	
5045	582		1		6	
5053	056		1		7	
5066	174		1		6	
5087	239		1		7	
5140	553		1		6	
5147	662		1		7	
5150	363		1		7	
5219	875		1		8	
5238	742		1		7	
5260	561		1		6	
5426	474		1		8	
5460	572		1		8	
5490	867		1		8	
5627	859		1		7	
5671	071		1		7	
5672	047		1		7	
57	7 873		1		8	
5731	437		1		8	
5737	288		1		8	
Ob			-G N			

**No 454**

LAT + 21

LONG 170

CLASS—IVa IVb I

Date—1905 Jan 20 21

W	l	gth	N mb Ob t	f	M W d	g
456	029		1		5	
4864	919		2		7	
4875	671		2		5	
49	8 511		1		5	
4	65 107		1		5	
5009	8 9		2		7	
5016	340				7	
5020	08		1		6	
5023	05		1		7	
5045	582		1		5	
5066	174		1		5	
5134	697		1			
5136	2 0		1			
514	652		2		7	

W	l	gth	N mb Ob t	f	M W d	n g
5150	363		1			
5219	875		2		7	
5225	695		2		7	
5426	474		2		6	
5627	859		2		6	
5671	071		2		5	
5672	047		2		5	
5708	797		2		6	
5707	204		2		5	
5727	873		2		5	
5731	437		2		5	
57	7 288		2		6	
Ob			-S S			

**No 455**

LAT - 13

LONG 168

CLASS—I IVc IVe IIc IIb IIIb

Date—1905 Jan 20 22 23

W	l	gth	N mb Ob t	f	M W d	g
4862	029		2		6	
486	783		1		5	
4864	919		2		8	
4875	671		2		7	
4965	107		2		6	
5001	165		1		6	
009	829		3		7	
5016	340		2		7	
5017	762		1		5	
5045	582		2		6	
5066	1 4		2		6	
508	239		1		7	
5140	553		1		6	
5147	652		3		7	
5150	363		2		6	
5219	875		2			
5225	695		1		7	
5	38 742		1		7	
5426	474		2		8	
5460	5		2		7	
5490	867		2		7	
5627	859		2		7	
5671	071		2		7	
5672	047		2		6	
5708	797		1		7	
5707	204		1		7	
5727	873		2		7	
5731	437		2		7	
5737	288		2		8	
Ob			-S S d G N			

**No 464**

LAT — 15

LONG 329

CLASS—IV<sub>c</sub>

Date—1905 Jan 29 31 Feb 2 4 6 7 8 9

W l gth	N b f	M n g
Ob t	Ob t	Ob t
486 029	6	7
4863 838	1	7
4864 910	6	9
4870 990	3	7
4875 071	0	7
4865 107	3	6
5000 82J	8	8
5016 840	0	8
5020 208	1	7
5023 052	1	8
5025 0 7	1	7
5043 761	2	7
5045 582	0	0
5053 056	2	7
066 174	8	8
508 3J	2	8
5136 270	5	8
5143 101	2	0
5147 052	8	8
514J 0 8	2	8
5150 303	0	7
5156 823	4	6
5160 138		7
5160 54	2	5
5163 200	1	
5161 007	2	5
5211 875	8	8
5 1 928	1	7
2 895		7
5 38 71	2	7
5 00 561	2	6
5300 J 9	1	7
5308 950	1	7
5426 174	8	9
5460 5 2	8	8
5490 367	8	7
490 905	0	8
5598 524	2	0
56 7 859	8	7
671 071	8	7
5672 047	8	7
5703 797	0	7
5707 04	6	8
5727 873	8	7
5731 137	8	6
5737 288	8	8
5743 045		7
5866 6 5	4	8
5867 785	8	6

Ob — S S d G N

**No 465**

LAT + 13

LONG 281

CLASS—IV<sub>a</sub> IV<sub>b</sub> II<sub>a</sub> II<sub>b</sub> IV<sub>e</sub> IV<sub>c</sub>

Date—1905 Feb 10 11

W l gth	N mb f	M
Ob t	Ob t	Ob t
4863 838	1	5
4864 919	1	7
4870 3 3	1	6
4865 107	1	7
5009 829	2	7
5016 840	1	6
5045 582	2	6
5053 056	1	7
066 174	2	8
5087 239	1	7
5120 592	1	6
5136 270	1	0
5143 90	1	8
147 852	2	8
5150 363	1	7
1 8 823	1	8
180 554	1	8
5164 007	1	8
5219 875	2	8
5225 695	1	7
5238 742	1	7
5 80 561	1	8
5426 474	2	8
5460 572	1	8
5490 367	1	7
5627 859	2	6
56 1 071	2	6
5672 047	2	6
703 797	1	7
5707 204	1	7
5727 873	2	7
5731 437	2	7
5737 288	2	8
5743 045	2	7
5867 785	1	6

Ob — S S d G N

**No 473**

LAT + 21

LONG 201

CLASS—I II<sub>a</sub> IV<sub>b</sub> IV<sub>a</sub>

Date—1905 Feb 12 14 15 16 18

W l gth	N mb f	M
Ob t	Ob t	Ob t
4862 029	3	5
4863 783	2	5
4863 838	2	5
4864 919	4	8
4870 323	1	7
4875 671	3	7
4920 047	1	6
4925 46	1	
4928 511	1	6
4J65 107	3	6



W l t l	N mb t f	M d g
5001 185	1	7
5009 8 9	4	7
5011 119	1	5
5013 479	1	8
5016 340	4	7
5018 629	1	6
5020 208	1	6
5043 761	2	6
5045 582	3	6
5053 056	1	7
5066 174	6	7
508 239	3	7
5120 92	1	6
5186 270	1	8
5143 901	2	7
5147 652	6	8
5150 363	1	7
5156 823	1	6
5160 554	1	6
5164 007	1	6
5219 875	5	7
5225 69	3	7
5238 74	2	7
5260 61	2	6
5426 474	6	8
5460 572	3	7
5490 367	3	7
5514 563	1	6
5517 084	1	6
56 7 859	4	6
5671 071	6	7
5672 047	6	6
5703 97	3	8
5707 204	3	8
5727 873	3	7
5731 437	3	7
5737 288	6	8
5 43 64	3	7
5866 67	1	6
5867 785	2	6
Ob	-S S	d G N

**No 478**

LAT + 9

LONG 268

CLASS—I IIc IIb

Date—1905 Feb 13

W l th	N mb t f	M d g
496 107	1	7
5009 8 9	1	8
5045 58	1	6
5053 056	1	7
5066 174	1	6
508 239	1	7
51 0 59	1	6
5143 901	1	6
5147 6 2	1	7

W l gtl	N mb t f	M d g
5150 363	1	7
5156 823	1	6
5160 554	1	6
5164 007	1	6
5219 875	1	8
5238 742	1	7
5260 561	1	6
5426 474	1	8
5460 572	1	8
5490 367	1	7
5627 859	1	6
5671 071	1	6
5672 047	1	6
5727 873	1	8
5731 437	1	8
5737 288	1	8
5743 645	1	7
5867 785	1	6
Ob	-G N	

**No 487**

LAT + 7

LONG 40

CLASS—I IIIa IVb IIIb IIa IVa

Date—1905 Feb 24 25 26

W l gth	N mb t f	M d n g
4862 783	1	5
4863 833	1	6
4864 919	3	7
4870 323	1	8
48 5 671	3	6
4876 060	1	6
4885 264	2	8
4965 107	2	7
5009 829	3	7
5013 479	1	8
5016 340	1	8
5020 08	1	7
5043 761	2	6
5043 88	2	6
5045 582	3	6
5053 056	2	6
5060 174	3	7
5087 39	2	7
5143 901	2	6
5147 652	3	7
5219 8 5	3	7
5225 695	1	8
5238 42	2	8
5260 561	2	6
494 913	1	7
Ob	-S S and G.N	

## No 488

LAT — 16

LONG 334

CLASS—I IV<sub>c</sub> IV<sub>d</sub> III<sub>a</sub>

Date —1905 Feb 27 28 March 1 3

W	l	gth	N Ob	b t	f	M W d	g
4862 029				1		7	
4863 833				2		8	
4864 J1J				4		8	
487 071						7	
490 310				1		7	
4905 107				2		7	
5009 829				4		7	
5013 479				3		7	
0163 0				3		8	
5023 052				1		7	
5043 701				2		7	
504 582				3		7	
5066 174				4		8	
087 239				2		7	
5136 70				3		8	
5143 J01				2		7	
5147 652				4		8	
5219 875				4		7	
52 5 695				3		7	
238 742				1		7	
52 3 039				1		6	
5300 929				1		6	
5420 510				1		8	
426 474				4		9	
410 572				4		7	
5490 307				2		8	
5490 905				1		6	
5027 859				3		7	
5671 071				4			
5672 047				4		7	
5703 797				3		8	
5707 204				3		8	
5727 873				2		7	
5731 437				2		7	
5737 288				4		8	
5743 645				3		7	
5868 875				1		6	
5867 785				1		6	

Ob — S S a d G N

## No 491

LAT +10

LONG 271

CLASS—I III<sub>b</sub> IV<sub>d</sub>

Date —1905 March 5 6 7 8 9 10 11

W	l	gth	N Ob	b t	f	M W d	g
4863 833				1		7	
4864 919				4		7	
4868 451				1		9	
4870 323				1		6	
4875 671						9	
4885 264				2		8	
4921 983				1		7	
4923 11						8	
4935 595				1			
4939 808				1		6	
416 107						7	
4975 590				1		6	
1978 732						6	
4978 785				1		6	
5001 165				2		9	
5001 82J				7		7	
5018 479				3		8	
01 310				3		8	
5023 052				1		8	
5018 761				2		7	
5045 582				5		7	
50 3 056				4		6	
5066 174						8	
087 23J				5		7	
5130 43				1		6	
131 70				1		8	
5149 901				4		6	
5147 652				7		8	
51 0 363				2		7	
521 187				6		8	
522 105				2			
538 712				4		8	
52 110				1		7	
5260 581				3		6	
5300 329				1		7	
5107 820				1		8	
51 0 10						8	
126 474				7		8	
5480 2						8	
5130 387				6		7	
5514 563				1		7	
5516 950				1		7	
5535 061				1		6	
56 859				7		7	
5671 071				6		7	
5672 017							
5703 797						8	
570 04				3		8	
5727 873				4		8	
5731 437				4		8	
5737 28				7		8	
5743 61				4		7	
578 952				1		7	
5868 67				2		7	
5867 785				3		6	

Ob — S S a d G N

**No 504**

LAT — 13

LONG 40

CLASS—IVa IVb IIIa IVe I

Date—1905 March 23

W l gth	N mb t f	M d ing
Ob		
4863 888		6
4864 919	1	10
875 871	1	8
4885 64	1	8
4928 611	1	7
4886 612	1	7
4965 107	1	6
5001 185	1	9
5009 829	1	7
5018 479	1	
5016 840	1	8
5023 052	1	8
5045 582	1	7
5066 174	1	8
5147 652	1	8
5150 868	1	7
5219 875	1	7
5225 695	1	8
5426 474	1	
5480 57	1	7
5490 867		
5627 859	1	8
5671 071	1	8
572 047	1	8
5708 797	1	8
5707 204	1	7
5727 878	1	7
5781 437	1	7
5787 88	1	8
5866 675	1	6

Ob —SS

**No 507**

LAT — 14

LONG 325

CLASS—IVb IVe IVd I

Date—1905 March 26 27 29

W l gth	N mb t f	M d g
Ob		
4864 919	2	8
4868 296	1	7
4875 6 1		7
488 284	1	6
4965 107	2	6
5009 829	3	8
5018 479	2	6
5010 840	1	

W l gth	N mb t f	M d g
Ob		
5043 761	1	6
5045 582	2	7
5053 056	1	6
5066 174	2	8
5087 289	2	6
5143 901	1	6
5147 65	3	8
5150 363	1	7
5189 948	1	6
5 19 875	3	8
5225 69	2	6
5238 742	1	6
5239 137	1	6
5300 1 2	1	5
5426 474	3	9
5460 72	3	8
5490 307	3	7
5490 905	1	6
5587 928	1	7
5627 859	3	7
5671 071	3	7
5672 047	3	7
5708 797	1	8
5707 204	1	8
5727 878	2	8
5781 437	2	8
5787 288	3	8
5743 645	3	8
5866 675	1	6
5867 785	1	6

Ob —SS dGN

**No 511**

LAT + 18

LONG 212

CLASS—IVa IVe IIIa IVb IVc

Date—1905 April 6 8

W l gth	N mb t f	M d g
Ob		
4864 919	2	8
4875 871	2	6
5001 185	2	8
5009 829	2	7
5066 174	2	7
5147 652	2	8
51 0 868	2	6
5219 875	1	7
5225 695	2	7
5426 474	1	8
5627 859	1	6
5671 071	2	8
5672 047	2	7
5708 797	1	7
5707 204	1	7
5787 288	2	8
5743 645	2	7

Ob —SS

## No 520

LAT — 20

LONG 119

CLASS —I V IIa IVa

Date—1905 April 13 14 15 16 19 20 21

W	l	gth	N Ob	mb t	f	M W d	n g
4961919			3			10	
4875 671			3			8	
4885 264			1			7	
49 8 511			2				
4986 12			1			6	
5001 18			3			8	
5009 829			6			8	
5013 479			1			7	
5016 340			1			7	
5020 208			1			7	
5025 027			1			9	
5013 761			1			4	
504 582			3			6	
066 174			4			6	
5136 270			2			(	
5119 901			3			6	
147 652			6			7	
51 0 303			3			6	
5219 87			6			8	
52 5 695			1			7	
5238 712			2			7	
5260 561			2			7	
5426 474			7			7	
5460 572			6			8	
5490 387			5			7	
5627 859			7			6	
5671 071			7			7	
5672 047			7			7	
703 797			2			7	
5707 204			2			7	
5727 879			3			7	
573 137			4			7	
737 288			0			8	
5713 615			1			7	
5966 0 5			1			6	
6199 308			3			6	
6210 895			3			5	
62 6 507			3			5	
6218 055			3			8	
6243 320			2			8	
6293 080			2			6	
6293 170			2			6	
6906 024			3			8	
6390 816			1			6	
6 73 080			2			7	

Ob —SS nd 6 N

## No 529

LAT +14

LONG 345

CLASS—I IIa IIc IIIb IVa

Date—1905 April 23 24

W	l	gth	N Ob	mb t	f	M W d	n g
4864 919				2		8	
4875 671				2		7	
49 8 511				1		7	
001 165				1		6	
5009 829				2		7	
5029 052				1		6	
5015 8				2		6	
066 1 4						8	
5147 65				2		8	
150 363				1		7	
19 875				2		7	
2 095				1			
5420 474				2		8	
460 572				2		8	
6 7 850				2		7	
671 071				2		7	
507 047				2		7	
5737 288						8	

Ob —SS

## No 536

LAT + 22

LONG 210

CLASS—I IIIa IVd IVb

Date—1905 May 3 4 5 6 7

W	l	gth	N Ob	mb t	f	M W d	n g
4863 833						8	
4864 919				3		10	
4866 151				2		7	
4875 671				3		8	
4881 739				1		6	
1885 04				1		6	
19 8 511				1		6	
1965 107				1		7	
001 165				3		8	
5009 829				3		7	
5013 179				2		8	
5016 340				2		8	
506 066				1		4	
5062 85				1		4	
5063 3 5				1		4	
5066 0 8				1		5	
5066 174				4		8	

Wavelength	N mb t f Ob	M W d g
5085 668	1	6
5087 280	1	7
5184 607	1	4
5196 27	3	7
5199 037	1	4
5140 553	1	4
5143 901	1	5
147 65	4	8
150 363	3	7
5166 823	1	4
5160 419	1	3
5164 404	1	4
5201 280	1	5
5210 059	1	5
5212 859	1	6
5219 87	4	8
5225 695	3	8
5238 742	1	7
5239 137	1	5
52 973		4
5257 814	1	4
5280 61	1	6
5295 485	1	7
5426 474	4	10
5482 753	1	4
5457 640	1	4
5457 701	1	4
5460 572	4	9
54 7 901	1	6
5482 078	1	6
5490 367	2	8
5490 905	1	6
5537 328	1	
5538 0 5	2	6
56 7 859	4	7
5671 71	4	8
567 047	4	8
5689 94	1	5
5689 812	1	5
5 00 402	2	7
5 00 508	1	5
5 03 797	3	8
5707 204	3	8
5707 5	1	6
5727 873	3	7
5731 437	3	7
5 87 288	4	9
5743 645	4	8
5866 675	2	7
5900 260	1	6

Wavelength	N mb t f Ob	M W d g
5918 63	1	8
5918 773	2	7
5923 885	1	6
5924 040	1	8
5938 70	2	6
5941 845	2	8
5941 985	1	8
5966 055	2	6
5978 768	2	7
6030 9 3	2	7
6063 080	1	5
6064 853	1	4
6081 665	1	4
6085 170	1	5
6090 429	1	4
611 740	1	8
6119 9 0	1	8
6120 485	1	7
6135 985	1	6
6150 360	1	6
6154 438	1	5
6160 651	1	4
6199 398	2	6
6210 895	2	6
6216 567		4
6224 198	1	4
6243 320	2	9
6252 048	1	4
6258 927	1	5
6261 316	1	4
6274 170	2	6
6280 598	1	4
6 85 384	2	7
6293 030	1	6
6293 170	2	7
6300 044	2	8
6330 816	1	5
6363 090	1	4
6455 820	1	4
6469 408	1	4
6471 885	1	4
6482 0 8	1	4
6493 130	2	4
6495 213	2	4
6499 168	1	6
6518 599	1	3
6573 030	2	7
6625 276	1	5
6717 940	1	4

Ob

—b s d g N

**No 541**

LAT — 18

LONG 185

CLASS—I IIc IIIa IIIb

Date—1905 May 9

W	l	th	N	ml	f	M	
			Ob	t		W d	g
4868 838				1			
4864 919				1			
4875 671				1			
5001 16				1			
5009 829				1			
5086 174				1			
5147 652				1			
5225 835				1			
5426 474				1			
5460 572				1			
5627 859				1			
5671 071				1			
5672 047				1			
5787 288				1			
Ob				—S S			

**No 544**

LAT +12

LONG 161

CLASS—IIIa IVb

Date—1905 May 11

W	l	gth	N	mb	f	M	
			Ob	t		W d	g
4864 919				1		10	
4875 671				1		8	
4921 968				1		6	
5001 165						7	
5009 829				1		7	
5018 179				1			
5016 340				1		7	
5023 052				1		8	
5045 582				1		6	
5066 174				1		9	
5087 239				1		8	
5186 270				1		7	
5147 652				1		9	
5150 368				1		7	
5219 875				1		7	
5426 474				1		9	
5460 572				1		8	
5490 867				1		7	
5627 859				1		7	
5671 071				1		8	
5672 047				1		8	
5703 797				1		7	
5707 204				1		7	
5727 873				1		6	
5731 487				1		6	
5787 288				1		9	
5743 645				1		8	
Obs				—S S			

**No 547**

LAT — 14

LONG 68

CLASS—IIc IIIa IVb IIa IVa

Date—1905 May 15 16 17 19 22

W	l	gth	N	mb	f	M	
			Ob	t		W d	g
4868 838				1		10	
4864 919				3		9	
4875 6 1				3		7	
4925 740				1		7	
4965 107				2		5	
5001 165				2		7	
5000 829				5		7	
5018 179				3		8	
5010 340				3		8	
5023 052				1		9	
5025 719				1		8	
5045 582				3		6	
5062 285				1		6	
5066 174				4		8	
5087 39				1		7	
5180 513				1		7	
5132 813				1		7	
5134 697				1		7	
5136 270				1		7	
5147 6 2						8	
5149 013				1		5	
5150 368				4		7	
5213 87				5		7	
522 695				2		7	
54 0 174				5		7	
490 572				7		8	
5490 867				1		7	
56 7 879				5		7	
671 071				5		8	
5672 047						8	
5703 797				5		7	
570 201				3		8	
57 7 878				4			
5781 137				1		6	
57 288				5		7	
5743 645				5		8	
5806 675				1		7	
Ob				—S S	d G N		

**No 563 A**

LAT +10

LONG 174

CLASS—I IIIa IIc IIb IVb

Date—1905 June 2 6 7 8

W	l	gth	N	l	f	M	
			Ob	t		W d	g
4862 029				1		8	
4864 919				3		10	
4875 671				2		9	
4885 264				1			
4965 107				1			
5001 165				1		7	
5009 829				3		7	

W l gth	N mb t f	M d g
5013 479	2	8
5016 340	2	8
5023 052	3	9
5045 58	2	7
5068 1 4	3	9
5134 697	1	7
5136 270	1	7
5148 931	1	7
5147 652	4	10
5149 013	1	
5150 363	2	9
5219 875	3	7
5225 695	1	7
5260 581	1	4
5426 474	4	9
5480 572	2	8
5537 9 8	1	5
5538 025	1	5
56 7 859	3	7
5671 071	4	7
567 47	3	7
5703 797	2	9
5707 204		9
5727 873	3	7
5731 437	2	7
5737 288	3	8
5743 645	3	8
5866 675	1	7
Ob	-SS d GN	

**No 563 B**

LAT +10

LONG 167

CLASS—I IIIa IIc IIb IVb

Date—1905 June 3 5

W l gth	N mb t f	M d g
486 029	1	6
4864 919	1	9
4875 671	1	8
4884 779	1	7
5001 1 5	1	
5009 829	2	8
5013 479	1	7
5016 340	2	7
5023 052	1	9
5066 174	2	9
5147 652	2	9
5219 875	2	8
5 25 695	1	7
5426 474	2	10
5460 572	1	7
5490 367	1	7
5627 859	1	7
5671 071	2	8
5672 047	2	8
5703 797	2	7
5707 204	2	7
5737 288	2	9
5743 645	1	9
Ob	-SS	

**No 568**

LAT —16

LONG 70

CLASS—IIIb IVb IVa

Date—1905 June 12 13 15

W l gth	N mb t f	M n g
4862 029	1	8
4864 919	3	9
4875 671	1	9
5001 165	2	7
5009 829	3	8
5013 479	2	8
5016 340	2	8
5023 052	3	8
5045 582	3	7
5066 174	3	9
5147 652	3	9
5219 875	2	8
5225 695	2	8
5300 929	3	8
5426 474	3	10
5460 572	1	8
5490 367	1	7
5 27 859	2	8
5671 071	3	7
5672 047	3	7
5703 797	1	9
5707 204	1	9
5727 873	1	7
5731 437	1	7
5737 288	3	9
5743 645		9
5866 675	1	7
Ob	-SS d GN	

**No 569**

LAT —15

LONG 53

CLASS—IVa IVb

Date—1905 June 11 12 13 16

W l gth	N mb t f	M n g
4863 833	1	8
4864 919	3	8
4875 671	2	8
4965 107	1	4
5009 829	4	7
5013 479	2	7
5016 340	3	7
5023 052	3	8
5045 582	3	6

W l gth	N mb t f	M
Ob	t	W d g
5053 056		6
5066 174	4	7
5147 652	4	8
5150 863	1	5
5219 875	3	7
5 25 695	2	8
5 00 561	1	4
5300 J29	2	9
5426 474	4	9
5460 72	2	7
5490 867	2	7
5490 905	1	7
5584 208	1	6
5627 859	3	7
5671 0 1	4	8
67 047	4	7
5 03 797	3	8
707 204	2	7
5727 873	2	6
5731 437	2	6
5737 288	3	8
5743 645		8

Ob rv —S S d G N

**No 574**

LAT +6

LONG 256

CLASS—I IIIa IIc IIb IVc

Date—1905 June 23 24 28 29 July 1 4

W l gth	N mb t f	M
Ob	t	W d g
4802 023	1	7
4863 833	1	10
4804 J19	6	9
4875 671	4	7
4913 803	1	8
4J28 511	1	7
4965 107	2	7
5001 165	5	7

W l gth	N mb t f	M
Ob	t	W d g
5009 829	6	7
5013 479	3	7
5016 340	3	3
5023 052	5	8
5043 761	1	8
5045 582	4	7
5058 056	1	6
5066 174	6	6
5130 757	1	8
5134 697	1	7
5136 270	1	9
147 652	6	9
5150 883	2	7
5160 554	1	8
5219 875	5	7
5223 351	1	6
52 5 695	3	8
5260 561	1	6
300 152	1	6
5300 J29	1	8
5394 913	1	7
5420 510	1	8
5426 474	5	8
5460 572	3	7
5490 367	3	6
5627 859	5	7
5671 071	6	8
5672 047	6	8
5687 068	2	6
703 797	5	8
5707 204	0	8
5716 0 1	1	8
5727 873		9
5731 437	2	9
5737 288	6	8
5743 645	5	8

Ob —S S d K V S



*Catalogue of widened lines observed between March 3 1904 and July 4 1905*

W v l gth (R w l nd)	O g	N mb f p t th l h b w d	N mb f t m d	M m f t w d g	W l gth (R w l d)	O g n	N mb f p t th l h b w d	N mb f t m d	M m f t w d g
4717 756		1	1	5	4985 595		1	1	7
4820 593	T	1	1	5	4986 512	O	2	2	6
4827 637	V	1	1	7	4989 868	F	1	1	6
4827 804	T	2	3	7	4 42 083		2	2	
48 1 689	O V	2	3	8	496 107	O	68	156	6
4859 316	F P	1	1	6	4965 351	N	1	1	4
486 029	O	28	55	6	4975 530	T	2	2	6
4862 73		1	1	7	4975 588	F	1	1	5
486 788		18	22	5	4977 833	F	2	2	
4863 833	F	18	22	7	4978 32	F	1	1	6
4864 919	V	41	90	7	4978 785	F	1	1	6
4865 798		2	2	4	4997 283	T	4	6	6
4866 465	N	1	1	5	5000 0		1	1	
4868 296		1	1	7	5001 165	T	23	39	7
4868 451	T	3	4	7	5008 825		1	1	4
4870 323	T	9	10	7	5009 829	T O	75	229	7
4870 996	N C	2	4	6	5011 119	N	2	2	6
4873 440		1	1	4	5013 479	T O	21	34	7
4874 976	N	1	1	5	5016 220		1	1	3
4875 671	V	28	58	7	5016 340	T	28	6	7
4876 060	F	3	3	6	5017 782	N	2	2	5
4881 739	V	1	1	6	5018 620	F	1	1	6
4884 779			1	7	5019 304		1	1	7
4885 264	T	9	11	6	5020 208	T	8	8	6
4887 187	N O	1	1	6	5023 052	T	14	24	8
4887 381	F P	1	1	6	5023 372	F	1	1	5
4893 030	F	1	1	5	5023 674	F	1	1	6
4901 152	T	3	3		5025 027	T	5	5	7
4905 310	F P	6	6	6	5025 749	T	3	3	8
4 13 803	T	2	3	7	50 8 808	F	1	1	6
4914 70		1	1	5	5029 805	F	1	1	8
4915 414	T	1	1	6	5036 645	T	2	2	7
4920 047		2	2	6	5043 475		1	1	5
4921 963	L T	5	5	7	5043 761	T	39	69	6
4925 746	N	2	2	6	5043 885		1	2	6
4928 511	T	11	13	7	5044 011		1	1	5

## Catalogue of widened lines observed between March 3 1904 and July 4 1905—cont

W <sub>l</sub> <sup>1</sup> g <sub>th</sub> (R w <sub>l</sub> d)	O g	N mb f p t th l b w d	N mb i t m d	M m mnt f w d g	W <sub>l</sub> <sup>1</sup> g <sub>th</sub> (R w <sub>l</sub> d)	O g	N b f l th l b w d	N mb f t m d	M m t f w l g
5044 045		1	1		116 914		1	1	5
5045 454		7	16	0	5117 071		1	1	5
5045 582	T	78	218	0	118 112	M	1	1	5
5053 056	T	8	55	6	5120 50	T	5	6	6
5053 170		8	10	0	5130 543	N	4	4	6
5058 301		1	1	5	51 0 757		1	1	8
5061 882		4		6	132 843		2	2	6
5062 066		4	5	6	133 870	I	1	1	0
5062 28	I	11	15	0	5184 0		0	8	6
068 355		4	4	5	5131 697		30	50	5
5064 244	T	1	1	5	131 810		2	2	6
5066 078	O	17	31	7	135 355		3	3	6
5068 174	T	83	282		130 270	I	10	5	6
5067 874	O	5		6	136 627		1	1	6
5070 165		2	2	4	130 83		2	2	6
070 471		1	1	6	5130 119		2		6
5071 666	T	5	6	7	138 271		1	1	6
5078 687	T	1	1	5	188 518		0	7	6
5070 021	F	2	2		138 090		13	23	5
085 311	T	12	1	7	5138 800		1	1	3
5085 513		8	0	7	5133 037		0	11	6
5085 608		0	10	6	5180 189		3	4	6
5087 104		1	1	6	189 817	O	0	8	6
087 289	I	52	99	7	5140 836		5	9	5
5091 896		2	2	5	5110 5 3		10	3	7
5092 058		3	6	6	5140 902		4		5
5096 081		1	1	0	5141 198	O P	1	6	7
5090 215		1	1	6	141 388	O —	4	8	0
5096 857		2	2		5113 288		1	8	8
5101 790		1	1	7	143 701		1	1	6
5104 204	F	1	1		5143 901		55	110	0
5104 614		1	1		5144 081		8	8	7
5106 623			1	5	5144 203			2	7
108 568		2	3	6	5144 847	O O	3	3	6
5113 298	O	7	7	6	5147 652	T	84	65	7
5113 617	T	7	7	6	5148 851		2	2	7

## Catalogue of widened lines observed between Mar 13 1904 and Jul 4 1905—cont

W l gth (R wl d)	O g	N mb f p t wh h h l w d	Numb f t m d	M m nt f w d	W l gth (R wl d)	O g	N mb f p t wh h th l w d	N mb f t m d	M m nt f w d
5149 013		7	1	6	5223 351	F	1	1	6
5149 964		5	7	8	5224 39	O	1	1	7
5150 363		78	195	7	5224 471	T	4	5	7
5150 525		1	1	5	5225 101	O	1	1	3
5150 736	— O	2	6	8	5225 198	O T F	1	1	7
5152 361	T	4	5	7	5225 19	F	42	60	6
5150 823	O —	18	27	6	5225 974	C	1	1	7
5157 168		7	8	6	5238 74	T	35	69	7
5157 376		1	1	6	289 13	O	22	45	6
5158 152		1	2	6	5239 99		1	1	5
5160 138		4	6	6	5243 526	C	2	3	8
5160 419	O —	11	12	6	5252 146	F	1	1	7
5160 554		13	18	7	5253 205		1	1	7
5161 006			1	6	5253 633	F	1	1	6
5161 353	—	2	2	0	5 55 978	T	2		4
5162 90		2	2	5	57 814		1	1	4
5163 074	O —	9	11	7	5 60 61	O	3	1	6
5163 200	O —	6	6	8	72 171	O	2	2	6
5163 585	O —	1	1	5	5 80 458	O	1	1	6
5164 007		8	18	7	5280 540	F	1	1	6
5164 404	O —	1	1	4	5 8 570	1	9	13	6
5164 724	F P	1	1	4	529 185	F	1	1	7
5160 454	O — F	1	1		23 955	A w P	3	4	4
5188 079	F	1	1	5	5297 407	O 1	3	4	7
5189 948		1	1	6	5300 152		7	10	6
5194 027		1	1	5	5300 929	C	8	10	7
5194 216	T	2	2	6	5304 355	O	6	8	5
01 260	T	1	1	5	53 0 20	F	3	3	6
5203 118		1	1	6	322 2 7	F	1	1	7
5 09 940		1	1	7	53 6 331	F	1	1	5
5210 059		4	4	6	5331 641	C	6	8	6
5 11 015		2	2	6	5338 517		2	2	6
521 398		1	1	7	5351 261	T	4	6	7
5212 859		1	1	6	5356 270			2	7
5219 875	T	79	230	7	53 8 306		1	1	5
52 1928	C	1	1	7	5366 616		9	13	8

## Catalogue of widened lines observed between March 3 1904 and July 4 1905—cont

W l gth (R wl d)	O g	N mb f p t n wh l th l b w d	N mb f t m d	M m f t w d g	W l gth (R wl d)	O g	N ml f p t n wh h th l b w d	N ml f t m d	M m f t w d g
5886 950		1		7	5512 018		4	5	8
5884 833		1	1	6	5512 711	T	2	2	6
5393 375	F	2	2		55 4 563	T	2	2	6
5894 889	M	2	2	4	5514 753	T	4	4	6
394 913	M	2	2	7	5516 950	M	2	2	6
5896 778	N	3	3	8	5517 034	M	5	5	5
390 995		3	3	7	55 7 791				
5897 822	I	3	3	7	5530 997	T	3	14	7
5407 820		1	1	6	5532 02		1	1	5
5420 510	M	7	8	7	5532 968		1	1	6
424 761		1	1	0	35 061	F	1	1	6
5428 471		82	26	8	5537 928	M	5	5	6
5432 753	Mn	31	69	6	5538 0 5	Mn	9	16	6
5438 259		1	1	5	5538 520		3	5	4
5438 507		1	1	4	5538 738	F	1	1	4
5447 454		1	1	6	5541 110		1	1	8
5457 010	Mn	8	9		5547 215	I V	4	4	6
5457 701	M	3	3	5	5584 08		1	1	6
5460 572		7	202	8	5 98 521	I	1	2	6
5461 762		3	8	8	603 9 3		2		7
54 0 218		4	5	6	5605 171		4	0	8
5470 802	M	1	1	8	5625 541	N	1	1	7
5470 888	M	1	1	8	5620 245		7	11	6
5471 414	T	8	18	8	5626 168		1	1	4
5472 916	F	1	1	0	5627 859	V	79	27	7
471 13	T P	4	11	8	628 867	O	3	3	5
5477 901	T	28	5	7	5644 365	T	2		
5178 900		3	8		646 322		4		6
54 9 988		1	1	9	5648 796	T	4	0	6
5432 078		41	94	7	5649 701		3	9	7
5458 374		4	4	5	5657 607		4	1	6
5480 307	T	60	164	7	5662 374	T	4	4	0
5480 905		3	48	6	5668 89	V	6	6	7
5498 709	F	9	17	6	5671 071	V	8	254	7
5494 6 9	F	1	1	5	5672 047	S	82	240	7
5504 117	T	9	18	7	5687 063		8	13	6

## Catalogue of widened lines observed between March 8 1904 and July 4 1905—cont

W l gth (R wl d)	O g	N mb f p t n wh h th lin b w d	Numb f t m d	M n t m f t d g	W l gth (R wl d)	O g	N mb f p t n wh h th lin b w d	N mb f t m d	M n t m f t d g
5687 182		1	1	10	5785 952	O	2	3	7
5689 694	T	14	22	8	5 86 193	T O	1	1	
5689 812	A P	2	3	5	5823 910		1	1	6
5698 746	V	14	27	7	5866 6 5	T	10	30	6
5700 402		8	18	7	5867 785	O	6	26	6
5700 508	O P	3	3	5	5873 486		1	1	5
5702 876	T	1	1	8	5878 015		1	1	
5 08 797	V	39	76	7	5880 250		1	1	4
5707 204	V	38	75	7	5880 490		1	1	6
5707 265	I	4	4	5	892 608	A ( )	1	1	6
5708 622	S	2	2		5899 518	I	6	10	8
5712 99C	O	7	7	6	5900 260	A (w )	4	4	6
5714 380	F	2	2	6	5908 748	A (w )	5	5	
716 671	T	15	31	7	5916 475	F	1	1	6
5717 723	A	1	1	8	918 635	A (w )	4	4	6
5719 795	A	2	2	5	5918 773	T	3	4	7
5720 886	T A	5	5	8	5922 334	T	3	4	7
5727 27	T -V	2	3	5	922 735	A (w )	2	2	4
5727 8 8		78	223	8	50 865	A (w )	2	2	6
5731 437		78	225	8	5924 040	A (w )	1	1	8
5732 522		3	6	6	5933 238	A (w )	1	1	6
5737 238		82	252	8	5938 27J	A (w )		6	7
573J 084		1	1	7	5941 845	A (w )	1	5	6
5739 698		11	17	8	5941 385	I	3	3	7
5739 873		1	1		942 789	A (w )	1	1	6
5740 195		12	18	7	5941 530	A (w )	1	1	7
5741 088	A P	2	3	6	5944 345	A (w )	1	1	6
5 43 182		7	13	8	59 3 886	T	2	2	6
5743 410		1	2	8	966 055	T A P	6	6	6
5743 645		46	124	7	5978 768	T	9	18	6
576 479	T	6	7	6	5988 785	A (w )	2	2	5
5 62 6 5	F	5	10	7	5989 510	A (w )	1	1	5
5766 550	T	8	9	5	5992 218	A (w )	1	1	2
5774 256	T A	3	3	7	5999 436	A (w )	1	1	6
5776 958	A —	1	1	8	5999 920	T A (w )	2	2	6
5785 498	F	1	1		6004 095	A (w )	1	1	7

## Catalogue of undened lines observed between March 3 1904 and July 4 1905—cont

W l gth (R wl nd)	O gm	N mb f p t n wh h th l b w d	N mb f t m d	M m f t w l g	W l gth (R wl nd)	O s	N mb f p t n wh h th l b w d	N b f t m d	M n t m f w d ng
6005 770	F	1	1	8	6261 816	T	1	1	4
6007 540	N	1	1	6	6269 080	V	2	2	6
6009 580	A (w )	1	1	6	6271 186	Γ	2	2	5
6012 450	N	1	1	2	6274 170		1	2	6
6089 953	V	9	18	7	6274 870			9	8
6058 912	N	1	1	8	6280 508	A (O)	1	1	4
6057 110		1	1	6	6285 384	V	4		7
6068 080		5		4	6290 427	A (O)	1	1	7
6064 858	T	8	11	6	6298 030	V		3	6
6081 665	V	9	11	7	6298 170	A (O)	4	6	6
6085 470	T Γ		5	3	6298 82	V	3	4	7
6090 420	F	5	5	4	6303 700		1	1	7
6091 305		4	5	4	6303 085		6	6	7
6097 505		1	1	7	6308 024	A (O)	11	17	8
6111 872	V	9	10	7	6312 4 (		2		6
6119 740	V	7	10	7	6327 820	N	2	2	4
6119 970	N	2	2		6330 818	C	8	10	7
6126 435	T	10	13	7	6363 090	C Γ	8	0	7
6135 580	V	4	4	6	6368 564	I	2	2	7
6135 985	C	3	3	5	6386 07	N	4	4	
6150 360	V	7	10	6	6381 880	N	1	1	(
6154 438	N	4	5	5	6392 51		1	1	5
6166 651	O	1	1	4	6405 980		1	1	1
6190 398	V	11	18	7	6150 033	O	1	1	5
6210 805		8	18	7	6455 820	O	0	10	(
6216 567		4	7	5	6467 784	O	1	1	4
6217 900		1	1		6461 897		1	1	5
6224 198	N P	1	1	4	6469 050		1	1	4
6224 715	V	1	1	8	6469 408		1	1	4
6240 863	F	2	2	5	6471 885	O	2	2	4
6243 055	V	3	6	7	6475 846		1	1	5
6243 320		11	16	9	6482 096		2	2	4
6243 540		1	1	10	6483 027	N	1	1	5
6252 048	V	10	18	6	6493 180	A (w )	1	2	4
6258 322	T	1	1	6	6494 004	C	1	1	6
6258 927	T	1	1	5	6495 213	F	2	3	5

*Catalogue of widened lines observed between March 3 1904 and July 4 1905—cont*

W l gth (R w l d)	O gn	N mb f p t wh h th l b w d	N mb f t m d	M m unt f wid g	W l gth (R w l d)	O g	N mb f p t wh h th l b w d	N mb f t m d b r v d	M m f t wid g
6499 168	F	5	6	7	6648 360		1	1	3
6504 415	A(w) —	1	1	5	6661 320	O	1	1	4
6518 599	F ?	1	1	3	6698 913		1	1	5
6554 470	T	2	2	4	6703 820		1	1	6
6555 700		1	1	6	6710 570		1	1	4
6573 090	C	7	11	8	6717 940	O	1	1	4
6574 468		3	5	8	6743 381	T	2	2	8
6581 45		1	1	4	6771 310	— O	2	2	6
6598 848	F ?	1	1	4	6807 103	F	1	1	8
6599 3 3	T	2	2	6	6815 210	C	1	1	3
6607 15		1	1	4	6840 086		1	1	8
6608 280		1	2	7	6842 945		1	1	6
6625 276		4	4	6	6857 515		1	1	6
6680 270	C	2	2	4	6881 983	O	1	1	5
6647 205		1	1	3	6883 325	C	1	1	5

## NOTES

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M h 8 C d t u b d 29 D d D p p d d f f d t h p t (GN)  
 4 N d t b O (SS)  
 5 O d f tly 229 B d t gly 231 (GN)  
 9 N d t b O (GN)  
 10 32 d 235 O d p t p t m (SS)  
 11 C l t b d 35 l b k l p l n t (GN)  
 13 N d t b O (GN)  
 14 O d t l 235 (SS)  
 15 N d t b O (GN)  
 16 O d t l b t 35 (SS)  
 18 N d t b O B g h t b l b d n 51696 (?) 51685 (m l t h m t l t t) 51600 d 51575 (GN)  
 19 C l g tly d t b d 240 I t b t t d l t l t l y l t h l k O l d d p l m n t  
 b t h d t t p l d t h b g h t O h w d m l b t n t q t h l g d l t t t h t h  
 p l (SS)  
 20 N d t b O D d k 240 n d b y d t (GN)  
 21 C l g tly d l d t l t l d d b t w n 240 n d l m b D l k d f d b l d t n o e  
 b y d 240 (SS)  
 2 C j m h b k l f tly l 242 (GN)  
 23 C l g tly d t b l 242 D t f f t d n l t l t m b t f h t t m t m d t b b l b g h t  
 l t h p t m f t l p t b t w t l p t l t l l m b (SS)  
 24 O l m l b l n 37 d l g h tly v d 240 d 24 N 10 t h w l o t j t f d k O  
 t w l t h l t B g h t b d l t d t 51140 d 5084 (GN)  
 25 D k O l g h tly d p l d t d t d 237 1242 O l g tly d n 24 (SS)  
 26 C l g tly b t d f tly d 237 l g h tly d n 46 D d k p t 237 242 245 d 246—  
 l l t w h g m t k f f l a o (GN)  
 28 C d t b d 242 A t p l t w b l l tly d d d p l d y l g h tly t w d l t d b t  
 l l A t w l d (GN)  
 29 C l g tly l t b d 250 (SS)  
 30 C d t b d b t w t l p t g p 248 D l O d p l d l 5 A t d 250 d l O l p l d t l t  
 13 A (GN)  
 31 C d 250 d l l l t h f l a o t (S)  
 Ap l 6 C l F b g h t l t l t t h f p t 251 l l m l l d t t h p t O l C h w d l p l m t t t h  
 l d f b t l l A A l p l m t t t l l t d w l l d w l l w l g h tly g t (GN)  
 7 51 B g l t b d t d t tly t b l t l t h p t w b d t 48626 d b t l o 2 d 51635 (SS)  
 8 254 O l g tly d t b l D m t d t tly d l d f l a o (GN)  
 9 O d f t gly d b t w 254 n d 255 l b t w n 255 n d t h l m b d t h l g f 255 D l O  
 l g h tly l p l d t w d d 255 D d k n 254 d 255— t 251 B l t l d b t J r S d n  
 D (SS)  
 10 S l g t l l d l l m t f O b t w n 254 d 25 (SS)  
 11 I t h l m b f 254 l l t h w l l l m d l g h tly l p l d t w d t h l t l l b g l t l l t l  
 p t p t m p l d m p l y p b t w d l l G p f w d l l m t l p l t y  
 f t l g b l (GN)  
 12 254 B g l t b d t 48635 51612 51635 56872 C d b t w d 254 A d l B l g h tly d d  
 b t 251 (SS)  
 13 l b g h t b d l t 5 858 (SS)  
 14 254 M y l d b l w d d b d w b d b t w b d F S m y b d b l w l d l y n  
 t h p t t l g M y f t l d k h p l n n t h p t m p p l w p d t l p t A t t h  
 t m t f t h p m b t h w g d p p h w d m t t h l d D l l d p t f l a o  
 t h p t (GN)  
 15 C d l t b t w t h t w b p t f 254 O l g h tly d t b d 261 (SS)  
 16 C f tly d n 254 d 261 T l b d d d b d p t b t w b d f w b d t b m d p  
 f t w m l l b d T h l y b d l p d k l p t d k t h n t l b d b d  
 (GN)  
 17 O y d t b d b t w t h t w l g p t f 54 D l O d p l d l A t o d (GN)  
 18 254 B g h t l b t 5438 C d d d k O l g h tly d p l d (SS)  
 19 O l 254 t l p l b t w n h f p t d p l r t 23 A t v o l t d l 4 A t d D l k d  
 l t w t h h f p t 254 (GN)  
 20 B g h t l b t 5438 C q t 261 l g h tly d n 254 (SS)  
 21 L g p m t t h p l f t h g p t 266 n d t h t g p t 254 I t h l t t b t l O d D  
 h w d (m m t l y) d p l m t O b t 2 n d n D b t 86 A (GN)  
 22 D d k p t 266 d w l l b y l t t w d t h l m b O d E l d l g tly t (SS)  
 23 D d k p t 265 266 d f g t d t n t w d t h l m b d k 267 d t w d t O l g h tly d  
 267 d l l l h tly d p l d t d b t w 265 n d 66 d t h l m b A b g h t l d l t D n  
 p t g (SS)



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Ap l 24 O f ntly d 266 lpl 265 tw ym h b k dg ly d pl D da k  
 t d th p t (GN)  
 25 O t gly d b tw 265 d 266 ndth lmb l m l wd g 265 th n 266 A  
 b ght b d p trum p t 266 b t 6222 6247 774 q t ff d p t 266 (SS)  
 26 O y d t b d 266 d l O d pl d t w d d 28 A D pl m t f q ly h g d d t n t m b t  
 w m p l t l y l t d f m O n l n th d d f t D d k d f f l p t h t t h g l t l  
 t l t d (GN)  
 7 O d l g n 265 d 266 N 265 l d p d ly h g d pl m t f d k d b ght O  
 t w d d M m m l t b b t 9 h 15 m l m t q t t 9 l 45 m (SS)  
 29 5484 490 f t 266 O d 266 l l pl d t w d d t l t O l b tw t l l p t  
 f m g g r p 265 268 y d t b d O h w d d l m t b t h d t m y pl d l p t  
 l p t b t m t t gly p t f p m t l p ly (SS)  
 30 O d t b d g p 266 d h w d l pl m t f b t 2 A b t h l t I 268 O d t b d h w g n  
 pl d pl m t f b u t 2 A t w d l t Th p t m f t h dg f t h p n m b 266 w d t t ly  
 d k th t f t h t f t l p m b All th l k h pl pl d l t l w g d l g h t l f  
 O n 65 (GN)  
 M y 1 St l f O b tw th l t n w ly p t d 266 O l l n 265 d l ghtly 268 (SS)  
 2 O g tly d t b d 266 B g l t O h w d d pl m t t l t f b t 23 A d h m l t d k O  
 h w d d pl m t t d N 265 t h w t l m b t h w b ght p t p m n h l l m t  
 t th d f b t 35 A l t t h d k O h w d q l d pl m t t l m d t (GN)  
 3 270 C d lpl b tw th p t (SS)  
 4 O d pl d t d 270 (GN)  
 5 S p t t m l f b t f w d d l b t t l g l th m l g p 268 d 71 w g tly  
 d t u r b l O t gly d l d pl d m tly t w d th l t Th t f t l l pl m t  
 l g d t y h t t r v l (SS)  
 6 O d t b d l d pl d 268 (GN)  
 8 O d t b l 271 d d l l d t w pl 15 A t w l l d n th pl t w l l t In 268 O d pl  
 l g 18 A t w d d I t l n t f t l g O w l l b g l t O d pl d t l  
 m d t l t m l m t Th l t d f ly b t l 5 m t (SS)  
 9 268 l ghtly d t b d 271 q t 275 y d t b l In 275 O w d d d pl d m y l B t  
 t w b t t t 8 h 50 m d t 9 l 5 m th m p l t h t h p t l t f t h  
 l pl t (SS)  
 10 275 O d w d g d l pl d t d b t 15 A 268 O d l l (SS)  
 12 278 O b t d d B t h b ght n d d l O d pl d b t 2 A t l t l s t t l d l t l t A  
 y d t b d p m t l p t (SS)  
 13 275 l ght l O O t h p t q u t (SS)  
 14 F l l f O 275 A t P A 180 d 246 t h pl l m l h w d d l d th h b y d k  
 h l (GN)  
 16 284 O y d t b d b k d t gly v d (GN)  
 19 286 O t gly d (GN)  
 20 286 O d (GN)  
 21 285 O y d t b l l d pl l 83 A t l t d 26 A t d 287 O f tly d O q t q t  
 f l m (GN)  
 22 285 O f tly d l t t h m p t b t g tly d t b d t h d t f l l w g t l p t D pl m t  
 30 A l t F t l 286 (GN)  
 23 286 C d b l O t b l k d l ghtly d l l d t l t l t m d t n t w t f  
 p t (SS)  
 26 N d t b f O n y f t h p t b t f t l f l a e (GN)  
 27 291 O l ghtly l w d g (SS)  
 28 O f tly d 289 291 d 2 J t gly l t pl l b f 291 O t h d g f n t  
 t h p m b f 291 d d t tly d k n m b D y d t tly l y l l y d k d  
 292 d f m d t t h d (GN)  
 29 O d b t h d f 292 d b tw 291 d 292 D d k 202 (SS)  
 J 1 N d t b C (GN)  
 8 O l ghtly t w t d 295 N d t b n n 291 (GN)  
 9 O d p t 295 N d t b 296 (SS)  
 11 295 O l ghtly d l b t 296 n d t b 97 O t gly l d d k O l ghtly d pl d t d  
 298 O v d w d g n d l ghtly b t (SS)  
 12 296 O l ghtly d l b t D k O d pl d l A t d 297 O t ly l t p n t (SS)  
 13 297 D d k O l ghtly l (SS)  
 21 30 O f tly d (GN)  
 22 299 O d l ghtly 300 g l t n p t 302 O f bly d l b d b tw p t d k  
 O d pl d l 5 A t d (SS)  
 J ly 5 307 d k O d t b d d l ghtly d pl d t d (GN)  
 6 307 O f ntly d (GN)  
 7 305 d k O d t b d d d pl d t d w l l d d pl d p t A l g p m th p t D  
 m t d t tly d k n d b y d p t 305 b t t n 306 (GN)

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J ly 8 O f tly d b t w 805 l l m b A b g p t l p t 8 l m h d d p p d b y 9 l  
 P m h w l d p l m t f b t 8 A t d O l D D d l b t w 805 d l m b (G N)  
 11 O q u t l l p t (G N)  
 12 D d (G N)  
 13 D d (G N)  
 15 O l g h t l y d p l d t f 808 (G N)  
 20 814 m d t d f t l m n p t y g t d p l m t f d k O w l d t 9 l d f f d l d  
 m d t f m O t l l t d m k g h p l w t h O l t d t 6557 A I t w  
 p d y l l t g d l g g f m n d l l d f t l t l m t l l m n n d l l m t w  
 b u t 73 A I t h m p t h w t l t d p l m t f t l d l O t h l f b t l 4 A I  
 t l l t m f t l b d g t h p t m y f t h d l l t l t l l l O 808  
 t n g l f O w t w p l (G N)  
 t n l y l t w p l (G N)  
 23 818 O l g h t l y d (C N)  
 24 814 A 6084 825 d l p d 6088 600 w y f n t l y d (G N)  
 26 819 l k O t p t d l l d l l A t d 811 C d t b d D l C t p t d p l d l 4 A t l t d  
 d f d t t h l t l l y d l l d l y m m t t l 18 O f t l y d (C N)  
 28 T w t f 319 O t l y d n d t l d l O d p l d l A t l t T h l g l t d p l m t t  
 l t l m p t t l 14 A m t l l b b d n t h t l t l  
 m t p t f 818 O w d l l d l 4 A t l (G N)  
 29 818 1819 l y f t l f C 321 O g t l y d t b l d t g l y d N f t l l  
 D l p d d k l t (G N)  
 30 831 O f t l y d l d p l d l 4 A t l D d l (G N)  
 A g u t 5 324 O l t t f D 326 O f t l y d t d l t D d l f i t 328 O f t l y d  
 D l l d g l (G N)  
 6 324 q t 326 O f n t l y d t d l t 328 O f t l y d D d l (G N)  
 7 324 q t 328 f t l f O l l g l t l y l l 28 O d d f d l t D l l (G N)  
 8 328 O f t l y l l t l l g l t l y l l d t a D y l l b t l t d l l (G N)  
 9 328 O f t l y l D y d k l t 28 O f t l y l D l g h t l y l l 320 t 8 l O f t l y  
 l l t q t t 9 l d l O p p d d d l y t t l t 35 A t l t t 5 l l f l l O l p d  
 d w i t h O t 9 8 l l m q t l t f y l g l t l l m t l d t 15 t h l d p l  
 m t m t l t b t l 5 A (G N)  
 10 324 d 328 j t 328 f t l f O D l l 930 l f O l t D d l f l o l l  
 t w t l g p f f l t l t d w t l m l (G N)  
 11 324 q t 326 d l O d l l l l 4 A t d D l l t l y l l 328 O f t l y l D l l l y l l 381 O  
 t l y l l l t D l l l t f m p t 328 O q t D y d l (G N)  
 13 324 O f t l y d D d l 326 328 1381 O l t D d l (C N)  
 14 326 O l l d d l l l D y l k 328 328 C l t D f t l y d l (C N)  
 15 326 328 O f t l y l D l l t l y t l 328 O q t D t (G N)  
 16 A l l p t q t (C N)  
 23 330 C d l g d l O l l l l g l t l y l l l D l l t h l l l t  
 330 C l (S S)  
 24 339 O y l t b d b l n y l l l l l y n d l l l l l C l l l d l 4 A l t w  
 p l D y d l l l t d m l t b b k m l l l t t l t l 381  
 d t b O D t b l t (G N)  
 25 380 C d l g (S S)  
 27 343 l t 349 O t g l y d 344 O d l d l O l l l d t l t A t l t t l t l t  
 q d t w h n l t w b l C w y g t l y l t b l D l O w t l l l A t 6 l 15 t l t  
 d p l d p l t f 7 A t l t b y 8 l 5 m t h d l l m t t l l l t h d d p l l l t l t g  
 d p l t t t h d l l t d y g t l l p t l l l l (S S)  
 29 349 O d w l 348 l k O d p l d l l t l (S S)  
 30 389 O b l l n t l y d m b f h f p t l m l l p t t D d l 34 d 349 l t N l k  
 D 344 O f t l y d D d k (G N)  
 S p t m b 1 344 d 389 O l g h t l y d l b n t (S S)  
 2 389 O t g l y d d b g l t O d p l d 2 A t d t p t d d l O d p l d m l l y t t l p t  
 d t h m d t D d k O t h p t q u t (S S)  
 3 348 n d 344 O d n d D d k 346 O d d d k O l p l d t d l 4 A D l l (G N)  
 4 346 O q t D d k t t h t f p t (S S)  
 5 346 O l g h t l y d n d b t (S S)  
 6 346 d l O d p l d t 15 A t d t t f p t f t l m g (S S)  
 9 348 f t l f O D d k n b t h d f p t (S S)  
 10 348 n d 349 O v d n b t h d f p t (S S)  
 16 350 O l g h t l y b t t t h p t t g l y d t p t t t f p t (S S)  
 17 352 O f n t l y d D d k m p t d t t f t (G N)  
 19 352 O b l l n t l y d n p l d d 8 t h p l d k O d p l d l 4 A t d D y l k  
 353 O f t l y d D d k 354 O d D f n t l y d k (G N)

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S pt mb 20 354 C ngly d l g da kOd pl d15At d b t w n w p t 353 C d  
 l g Oth p t q t (SS)  
 22 354 Of tly d l t p t d d pl d t d D d k (GN)  
 23 4 C t ntly d 356 C b l l tly d d g p d l ghtly d pl d b h d D d k thun  
 fl m t m d t t t h t f m t t d d (GN)  
 24 354 C t ly d 358 C t gly d d d kOd pl d15At d D d l (SS)  
 26 356 C t ngly d d l htly b t D d k 357 C d n d d pl d b t h w y t l pl  
 (SS)  
 27 356 C t gly d (S )  
 28 37 C f tly d d kOl pl d1At l D d k t t i p t 361 C q u t D d k (GN)  
 29 35 d 361 C f tly d t t f p t (SS)  
 30 357 C f tly d p t D f tly d k 361 C q t D y l ghtly d k (GN)  
 O t b 1 361 C m h d t b d t gly d d l pl d07At d d22At l t T l l t t l t d ly h t  
 t m 357 O d f tly 362 O d t gly d b t h d k d b ght C d pl d14At d  
 d b t w t h p t f t h g p (SS)  
 2 357 C f tly d D d k m g d f t h t 362 C d b t h d f p t D y  
 l k (GN)  
 3 63 C d l g l b t t w d l t 357 d 361 C d (SS)  
 4 368 C t gly d d l Od pl d14At l t t t m d f t t d D y d k (GN)  
 5 363 D d k O y d t u b d O b l l tly d d b t h b ght d d k C d pl d m tly t d Th  
 t g t d pl m n t f d k O 35At l h n g g y p dly 364 C l ghtly l d b t (SS)  
 6 36 C y m h b k n d l g tly d pl l D y d k 363 C f ntly d D d k (GN)  
 7 363 C f tly d 366 C t gly d l t p t d d k l b h t O l ghtly l pl d t d 367  
 C t gly d g p l t p t d pl d15At d l2A l t (SS)  
 11 368 O l ghtly d 367 O l ghtly d d d pl d t d 363 O l ghtly b t t w l t (SS)  
 13 368 C d t t b g p t (SS)  
 14 367 d 368 q t (GN)  
 17 32 C d d d kOd pl d b t h w y 368 C d 367 O d d kOd pl d15At d d  
 l ghtly b t t l t (SS)  
 18 368 C f ntl l (GN)  
 19 368 C d l l ghtly b t t d 32 C f tly d (SS)  
 24 370 C d m t t ly l t t h b g p t d kOd pl d15At d (A l g p m n th  
 l ) 372 d 374 C f tly d (SS)  
 25 36 C d d d kOd pl d14At d (GN)  
 6 376 C d m tly t t f b p t d l t t (SS)  
 27 375 q t 376 C d t h m d d l f t h g p D d k 380 C f tly d (GN)  
 28 375 376 381 C d m t t gly t h l g t p t f 376 A l ght d pl m t t d f d a r k O 376  
 (SS)  
 29 36 C f tly d d d kOd l l d15A d 381 O b l l tly d D d k l l l g t h t n (GN)  
 30 381 376 O l t h w h l p t g I 376 t w f t h l y t g t h t f t h b g  
 p m t h p t d f l l y (SS)  
 31 376 C d d l pl d t l t D y d l t h h l p t O t l r t q t (SS)  
 N mb 4 C f tly d t t f 381 d t w t f 388 (SS)  
 5 386 f t l f O 381 388 q t (GN)  
 6 383 C f tly d d d kOd pl d15At d D y d k 383 q t (GN)  
 7 387 388 C f tly d (SS)  
 8 381 C f ntly d 388 q t (CN)  
 11 390 O l ghtly d d b t b t w p t d l m b (SS)  
 12 390 C d p t (GN)  
 14 390 C f tly d 391 O y d t b d b l l tly l b g p t h p t d b t w p t d l m b  
 d d pl d l pl m t d m t l t d d l l m t m l l m m m t l t 3A Tw  
 p m p t h w d d pl m n t t l t l (SS)  
 15 390 q u t 391 C l d d kOd pl d15At d (GN)  
 17 O d l ghtly b t w 395 d l m b Oth p t q t (SS)  
 18 390 d 395 C q t 391 d kOd l l d15A b t l w y 396 O b k d d l l d l At d D d k l n g  
 t l g p (GN)  
 19 S p t l l q t (SS)  
 21 D (SS)  
 24 395 C f tly d d b k l l l g t h 398 O b k n 399 C q t 400 C f tly d (GN)  
 28 399 O d d b t h b ght n d d l O l ghtly d pl d t d (SS)  
 24 399 C f ntly d 395 q t 384 310 d 6247 774 p p d t f d t t h p t p t m (GN)  
 25 399 C t gly d t h w h l p t d f m d t t D l k Oth p t q u t (SS)  
 26 398 q t t 8 30 m b t t 9 30 m d k C t n p t d l pl d At l t 399 C d t b d D y d k  
 p t 395 q t 402 C d d D d k b t h p t f t h g p (GN)

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N mb 27 402 C d At p t b tw 395 d 402 wh th w n p t d k O d pl d 2 A d wd ar  
(SS)  
28 398 l t 406 O b k D d k (GN)  
29 O d 398 406 d 407 (SS)  
30 407 C m h b k d b l l ntly d D y d k b tw n p t l d th m th p mb b t  
t th mb (CN)  
D mb 1 407 C d d b nt t l t b tw t l tw p t R l y t t l t d d k O d pl d b nt  
2 A t l t l g D d k 401 O d d d k O d pl d 2 A l t l t p t (SS)  
6 413 C d t f p t D d k t m pl 414 O d D y d k d d f d 415 q t (GN)  
10 O f ntly d th f l g b tw 418 nd 419 D d k b tw 419 d l mb O th p t q t  
(GN)  
11 419 O b k d b ght O l pl d D d k b tw 418 d 419 (GN)  
12 420 C d b tw p t d l mb 419 C l ghtly d d b t (SS)  
16 419 C d d k O l pl d b th w y l g t t f g r p (SS)  
29 487 C l ghtly d (SS)  
30 439 O nd F b l l tly d m n y pl d d pl d l ghtly p t t d th t l t D d k  
(SS)  
31 430 C d th mb e f b th p t f t l g p (SS)

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J y 5 439 O d d l ghtly l pl d (SS)  
7 447 F d d b t 443 b d l g d b nt l pl (SS)  
9 58 F l ghtly b t 457 d 458 F d pl d O S A t d (SS)  
11 419 y l t b d O d F d l g d b t n l pl l d l l l A t d D y  
d k t p t d d pl d l ghtly t d th t f th g up 445 446 447 O d (SS)  
12 447 O d d l ghtly d pl d t d 449 450 451 l d m l f m l l d F (SS)  
14 453 F d l l ghtly l pl l 451 nd 454 F d 443 F d b l l tly b l t l l pl d l A  
b th y d l F l ghtly l l l d t d 446 447 449 450 452 f t l f O (SS)  
16 455 F d t l pl m t t gly p t 456 F d (SS)  
17 O b l l ntly l mb f m l l p t b tw 449 nd 450 D l l l l l g g l 449 450 d 451  
(GN)  
18 N N F l m l l l ghtly d t b l 449 O t gly d (SS)  
21 459 O d wd (SS)  
23 455 459 O d l pl (SS)  
5 D l ghtly l k b tw p t 460 l l mb (GN)  
26 C t gly l f l m p 110 460 O d F d d k F l pl d l ghtly t d 4 5 O d  
b tw p t l l mb (SS)  
NB—N t g l g th g t p t N 404 488 507 t t l th y w l l b d l tw th p t p b l t  
F b y 8 465 O l ghtly d 466 O l ghtly l pl d t d (SS)  
10 46 C d f tly p t g t gly t p t b tw th tw mb e (SS)  
1 473 C d F l ghtly d pl d t d l d t l p t 405 C l F d pl d (05 A F) t d t d  
p t (SS)  
13 478 O b k n j t b l w l l g p t D d k b tw p t f t l g p (CN)  
14 46 d 478 O t gly d p t d n l pl n (SS)  
16 478 C d F d t b d d t gly t f g l D l F d l l d t l t 5 A t J 20 b t ly  
05 A t 9 25 (SS)  
18 481 O d p t l d k O l ghtly d pl d (SS)  
20 481 O t gly d b t t f g p n p t d l t l ghtly t d O t gl l t m n y  
l l th l g g p f f l m t W l mb (SS)  
d 487 O b l l ntly d t p t d th g p d t th m pl D t l y l l d h p C d f d  
l b l l l g th g p d d n th l t d t p t th t l t f th g p (GN)  
21 487 O d F d t n y p t m t t n g l y n t f g l D k O l F l l l d t t l w t l f  
g p t d t b t O S A F (SS)  
M h 1 491 th f l l w g l b ght l th k d l ghtly l pl d t l t F ( y t g) b b \* b  
b 5318 790 (F y t g) 5018 629 (F) 4924 107 (F) D D D (t g) C (t g) (SS)  
491 O b l l ntly d l m l f p t D l b l l tly b g l t t m l l D t d p t  
d k d t l y d k t p t w l O b l l tly d Th b ght p m l t p t  
B h t F d pl d 60 A b th d t d n t d k F d pl d t l t b y m t y g f r m  
O t 40 A (GN)  
3 490 O d F d d l ghtly d pl d t d t l pl (SS)  
4 O t gly d t l pl n 490 nd b tw 488 d t l b w h th p t (SS)  
6 490 O d F d t gly t m y pl l ghtly l pl d t d t t f g l d pl d b th  
w b g p t 20 A t l t O S A t d C and F d th p t (SS)  
8 490 O nd F d t gly t m y pl th g p m t t gly th l g mb F d pl d 15 A t  
l t wd d 10 A t d t w t f g p (SS)  
10 491 O nd F t gly er d t nt f g r up d k nd b r i ght F d pl d l t A t d q t l t h th  
(SS)

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M h 11 491 O b k l l l g p (C N)  
 13 490 O d F t gly l t l pl d l g h t l y d p l d t l l t p t t p t t d d  
 t n t h t l t (SS)  
 18 503 O b k n l k t t d (GN)  
 21 504 O d F l p t d l g h t l y d p l l t d 503 O l d F d t gly t m y p l d  
 w d F d l l d 0 5 A t d (SS)  
 26 511 O l l t l y d p l l t l t 520 O t gly d d l t l l g h t l y b t (SS)  
 A p l 23 529 C d d d l O l g h t l y d p l d t d (SS)  
 24 529 C l d k O l g h t l y l p l d t d 531 O t w t l d d m l w y b t w n t l t w l t (SS)  
 26 O d l b t t h l g g p f f l a t N D l m b (SS)  
 27 531 O l t t l l b k t t f p t (GN)  
 28 529 O d n d b n t t l l l (SS)  
 29 520 O l t t d d d p l (GN)  
 30 536 b g h t p t t l l p m h w g d p l m t l t p t (GN)  
 M y 1 536 d F t gly d t h g p n d l g h t l y l l l d b t w t h g p d w t l m b (SS)  
 2 536 C k t t d p t (GN)  
 3 536 O t gly d d t h m l l m l (SS)  
 4 536 O d f t l y t f p t (GN)  
 5 536 O l F l l t l y d l l g h t l y d p l d b t l w y t f t h l p t C d F  
 l g h t l l d k t t l t l p l n t h f l a t w t l m b (SS)  
 6 536 O b l l t l y d t t l t p t f t h m b f t h m p t t 9 l f t 10 l (GN)  
 7 542 O d t l p l t h p t 536 O d m f t l m p l t (SS)  
 9 541 C D D D b b b i F b l l t l y d t h b g l t O b h t p l l t l g l m t  
 t l w h l g p D b g h t t h p t d d l b t w t l m (SS)  
 10 544 C b l l n t l y l n d t h p t (GN)  
 11 O l t p n t m d w y b t w 536 d 545 (SS)  
 18 547 O l l l 2 A t l t t l f g p (b t t t f t h f t h g j) l l g h t l y d p l d  
 d l l l 5 A t l t B l t F w d l l d t h m p t 2 A b t l y F l l m l f b b l t l A  
 b g h t t p t m 540 C d p l d l g h t l y b l w y 544 F d l l d l A d  
 t t f p t (SS)  
 14 547 O l t t d d b l l f d l l (GN)  
 17 547 C d l l l l g h t l b t h w y t l t t t h f b g p t (b S)  
 19 547 O l g h t l y d t h b l t (SS)  
 23 547 C l F d n t h p t B g h F d l l d b t h w y l t l A d l m d t t f l l  
 (SS)  
 25 F l a t l m b C d d l t t d l p l (SS)  
 27 558 O t w t d t d f p t d l l t l y d w d F l m t l 65 C l t v l  
 l l (SS)  
 31 563 O b l d l t t l p t 558 O l l (GN)  
 J 1 563 O t l y d m l d l f l (S)  
 3 563 O d b t m d d l f g p (SS)  
 5 565 d 566 O d (SS)  
 6 568 O l h t l y d t w t f g p 565 O l g h t l y l p l l t l d t l d l f g l (SS)  
 7 568 O l t gly m l l t t t l f g l d l h t l y l m t t h w l l g p (SS)  
 8 568 O d p t t t l f g p (SS)  
 11 568 C d l t w t d d l m b (SS)  
 12 565 O d l g h t l y t t w p t t w t d (SS)  
 23 574 O l l d t h b i g p t d t l t h p l t h g p D l O d l d p l d t d l  
 f m f h k t w t f b g p t m m b 0 A (SS)  
 24 571 1578 C l g h t l y l p t (KVS)  
 28 574 C l g h t l y d p t (KVS)  
 29 574 O d t h p t 578 O l n b t h d f l t (KVS)  
 30 540 d (KVS)

30th N mbe 1905

O MICHEL SMITH

D t K d s k n l and Madras Obser at rise

# Kodakkanal Observatory.

## BULLETIN No V

### LIST OF PROMINENCES OBSERVED BETWEEN 1905 JANUARY 1 AND 1905 JUNE 30

The following list is a continuation of that published in Bulletin No II but differs from it in containing not only the prominences that were recorded visually but also those that have been photographed with the spectrohelioscope. The visual observations have been made throughout with the Evershed 8 prism spectroscopically mainly in the hydrogen line C. The spectrohelioscope is directed in the calcium line H usually with an exposure of from 1 to 4 minutes. When prominences entered in the list were photographed but not observed (usually cases). On a number of occasions when the prominences were seen and photographed attention is called to the fact either in the remarks column or in the notes.

So far as general conclusions are involved it follows from the observations that generally that near the time of maximum activity the prominences in hydrogen are more numerous and very close in form with those photographed in calcium light. There are a few prominences seen in hydrogen which are not photographed in calcium and apparently a rather large number photographed in calcium which are not seen in hydrogen. It would however be unsafe without further examination to conclude that all those photographed but not seen were actually in hydrogen. It is necessary at least almost certainly that they were only fairly faint to be seen against the bright background of the solar disk with thin clouds. But while in the case of the calcium and hydrogen prominences are very closely related there are frequently very marked differences to be found especially in the only part of the prominences which are more abundant in the photographs than in the drawings and in cases where the prominence is fainter than the drawings though it may not always be the case. The difference between the two classes however is that in a very large number of cases the calcium prominences are continuous the hydrogen ones. The word continuous perhaps hardly expresses the matter quite fully but it is difficult to find a better. In a large number of cases the hydrogen prominence consists of a number of filaments and in most of these cases it is found that calcium partly or completely fills in the structure. This is not an illusion due to want of definition in the photographs which under favourable conditions have the finest details of the prominences quite sharply.

It may be mentioned that spectrohelioscopes of the disc occasionally show prominences extending to a considerable distance inside the limb either (1) as an area of very dark flocculi or (2) as a very less dark than the surrounding area indicating greater absorption. In this connection reference may be made to the note for March 2nd when the displaced C line which was bright beyond the limb could be seen on the disc (still displaced) as a dark line.

The heights given in the tables are measured from the chromosphere and not from the photosphere. The detail of spectra given in the notes make no claim to being complete and the absence of any light line from the list must not be taken as an indication that it was actually absent from the spectrum but only that it was not conspicuous. Time is rarely available for anything like a complete examination of prominence spectra.

D t n d b	H M M	B	L t t l		L b	H l t	R l
			N t h	t l			
100 J y l S	1 39		69		W	24	Th l l
	17		46		W	30	
			2		W	1	Sl t g d d } C d t b
				2	W	24	l d
	54			27	W	80	I l g n l w d
	14 5			60	W	10	S N t
	2			0	W	30	Pl l k w d t t l
					L	46	B g l t t l l
	18		9		D		L j d t l m L t t-29 l b y t k
					L	1	l b g l t l t f t g w y f m t h h m
	20		2		D		L h
	4		46		D	36	B d b g h t t l
D 5 S S	9 30	6	45		D	30	
		4	3		L		l l w b k
	20	2	10 5		D	24	S N t
	16	1		15	F	4	
	10	1		17	l	24	
	8 7	5		27 5	L	30	
		1		53	E		L w b g h t
	3	4		30	W	10	
					W	4	
	51	2			W	30	
	9 16		41		W	16	D t h d f m t h h m p h
			42		W	16	D
			15		W	30	V y f t
	13		60		W	42	
	48		89		W	4	
D 6 S S	11 45			68	D	30	Py d l
				54	F		l l h p h w d b l f 2 t h
				47	D		d
			2		L	30	l l w b k
	5	6	30		D	4	C n l l t g t w l
					L	30	T w b d l t h t l
					L		S N t
D 7 S S	J	1	60		F		L w i
	8 9	4	39 5		F	30	
		7	10		E		F l t t n t b
	5		2		D	42	
	50	2		7 5	D	4	S N t
	44			37	L	30	F p t
	37	2		64	E	30	
				84	W		
	10 33	1		16 5	W	60	
	0			5	W	36	D t h d f m t h h m p h b d
	0			5	W	30	
	20			3 5	W	30	
					W		S m l l b g h t
	9 3	1	1		W	24	
			42		W	24	
	2		45		W	30	
	4		66		W	48	
		0	2		W		S m l l b g h t
D 8 S S							S N t
	11 3	10	34		D		B g h t
	0	0 5	7 5		D	30	
		1		1	E	24	
	0	0		4	E	24	
		1		6	L		L w
		1	3		W	48	
			44		W	48	
	6		88		W	30	
					W	24	
D 9 S					D		S m l l f t
		0 5	69		F		L
	9 35	14	46		F	48	E p t R p d l y h g
			15		I		L b g h t
				6			

D t	d b	II M M F	B	L t t d		L m b	H g h t	R m k
				N t h	S t h			
1905								
J	y 9	SS	9 28 25 0	25 1 0	12 43 61 77 71 51 25 20 4	F L L W W W W W W	24 30	Th l m ph w d t l l m t h g L w E t d b l N m l t l b g l t j t L w d b l A l w f n t l d b g h t p l t h l m p l l w b g h t j t
			9 12 7 0	1 11	16 465 615	W W W	30 1 30	D p t
D	10	GN	9 51 52 48 11 10 10 40 35 30 10 6 0 9 58	05 0 3 0 0 0 0 15 1 6	675 62 60 115 12 33 13 1 2 64 7 6	E I I L E L F J I D W W W	36 21 21 60 36 36 21 12 30 18 36 1 18	D t h d f m t l h m p l V y b g h t D t l d f t h h m p h
D	11	SS	10 27 13 11 14 18 16 14 1	2 2 2 25 2 2 5 1	27 11 9 81 28 20 13 13 18 68	I I L I D W W W W W W W	21 80 21 80 24 80 24 30 30	Pl l m pl w l g h t A f w t l h t l l S m l l b g h t T l l l h w b h t S N t l V y b g l t l w D l t y b g h t l p t l l l S N t L w b g l t
A	12	SS	9 15 J 0 33 28 27 22 20	1 0 1 8 2 25 1 2 1	38 3 20 12 18 53 78 17 315 6 12 19 255 295 52 60	E E D D L I W W W W W W W	36 1 24 24 24 24 21 21 24	A l w l d b l I b l n l k L w l t S N t I w b g l t l b l
D	13	CN	0 26 23 15 45 48 40 85 32	4 15 10 4 3 3 35 1	825 32 43 3 19 30 43 54 9 88	F E E W W W W W W W	36 1 24 24 24 24 21 36 12	S N t S p d t t l t p B g h t l w L g



Date	Time	M M T	B	Lat d		L mb	H ht	Remarks
				N th	S th			
190		M						
July 11	SS	10 1	2 05	68		E	30	S N t l
		10 10	5 5	49		L	24	B g l t
		8	4	29		L	60	S N t
		9 58	1	15	15	L		L w t t t l dly h g g
			4		32 5	L		L w l t
			3		54	L		Tw l w l t l th
		51			6 5	E	30	A l l bl f t l m d t h d f (l)
			1		30	W	24	h m ph
			15		17	W	24	
		10 55	10	2	11	W	24	V y b l t b t t l l
		40		38		W	90	
		35		44		W	30	T l l g
				19		W	4	
		2	8	54		W	90 & 24	
				61		W		
		19	0	78		W	24	A l d bl
D 16	(N		2	45		L		L
			2	34		L		L w
		10 35	4	19		L	16	
		94	8	05		D	18	
		32	1		8	D	50	L
			2		11	D		
		28	4		38	E	32	
		25	1		2	L	21	
		11 10	3		33	W	10	
			2		20	W		
		7	2	1	15 5	W	24	Th l t th
		5	10	23		W	1	
		0	16	71		W	105	
			15			W		
D 1	SS		25	25		L		
		10 20	0	63		L	21	
		25		59		L	24	D t h d f m t l h m l l
			1	4		L	21	
		21	45	80		L	60	A g l h
		21	1	32		L	60	
			1	24		L		I
			5	17 5		L	4	A l l l l t
			15	7		L		B g l
		2	6		12	L	30	T g l h d t d t h t l
		9 54	5		32	L	60	
		50	1		48	L	4	F t
			1		65	D		L w b g l t
		40	1		7	L	24	L t l dly l g g
					7	W	4	
					64	W	0	
			1		62	W	24	
		10 58			9	W	5	
		58	35		35	W	51	B g l t m p t
		48	35		2	W	21	
		40		25 5		W	120	S N t
Do 17	GN	10 30	4	62		E	18	
		29		54		E	18	A l d bl
		28	1	8		E	44	T l k
		20	4		30	E	110	
		5	7		49	L	60	
		55			5	W	18	
		50			61	W	50 & 80	
					41 5	W	5	
		45	2		38	W	55	
		43	4		4	W	70	
		33	1	58 5		W	55	
Do 18	SS	10 8	4	62		E	24	
			1	52		E		A l w h
				8		E		A l w t g h k

D t d b	H M M T	B	L t t d		l b	H ght	R m l
			N th	S th			
1905	M						
1 y 18 SS		1		7	D		L w m
		2		19	T		L w l d bl
	9 45	1		29	T	48	S N t l
	15	1		34	F	48	
	36	9		47 5	E	60	
				66	T	24	
	92			68	D	24	A l g l t f k d j t
				47	W		L w l t g
		3 5		39	W		
	40	14		9	W	60 & 24	S N t 2
		1	16		W		l l w l
			(		W		I w l t n g
	10 21	1 5	28		W	21	
			7		W	12	
		0 5	84		W		A l w l l l l
0 19 GN		0 5	67		E		
	9 4	3	63		D	40	
	50		1		l	21	
		3		9 5	l		
		2		35	E	30	
	15			38	T		L w
	45			40	T	55	
	40	2		48	D		
	10 34			71	W	30	
	30	0 5		87	W	70	T i y l d d y l y t t h l m b
							g t L t - 32 W
	30			29	W	60	
	15	8		19	W	40	S N t
			17		W	30	
	5	5	24 5		W	(0	T h b t l t L t + 33 W
	59		43		W	12	
			58 5		W		T h l l t l
	50	5	67 5		W	175	
1 20 SS		1	62		I		L w
	10 20	1	60		I	24	
		2		11	E		A l w l
		1		32	l	24	
	30	4		40	l	60	
				5	I	24	
	36	1 5		64	F	48	
		1		66	I		A l d bl
	9 46			63	W		L w l n t g
		1 5		60	W	80	Tw l t g t l
				48	W	24	
		1		45	W	0	
	52	5		25 5	W	24	V y b ght p l
	10 0	5	5 5		W	21 & 80	
		1	30		W		L w l w l t h t l
			43		W	30	A f n t l d d t l f t h l m p h
	6	1	50		W		L w l w l t l t h
			54		W		L w f t l t
	10	8	65		W	7	
1 21 SS	10 31	2	63		E	60	
	27		42		D	48	
	20	4	23		E	84 & 48	T h p m n t d t t l
	20	2	19		I		L w
				1	l		L w
				17	l		L w
				34	l	36	
		0 5		38	T	36	
		0 5		41	E	48	
	9 55	2 5	63 5		E	72	A l p
	10 46	2	60 5		W	12	D
		1 5		30	W		L w
		8		25	W		L w
	40		4		W	30	V t l j t w t h b n l ght gl
	37	3	20 5		W	36	
	33	3	85		E	48	S N t

D t d b	H M M I	B	L t t i		L m b	H g h t	R m l
			N t h	S t h			
1905							
J y 22 G N	10 12 5 9 5 t 10 0 9 5 0 45 15 45 42 30 25 5 25 2 25 1	2 4 2 12 0 5 1 1 5 1 9 1 0 5 0 5 0 5 12 14 15 61	68 6 42 22 4 7 9 12 14 61	2 51 5 5 61 64 85 68 5 7 6 85	L L I D E E L L L W W W W W W W	90 180 90 & 30 24 12 4 10 18 30 18 18 15 90	L w A t l l I p m n l l t d t t p L w L L w D t l l f m h m l h V y f t h g h t S N t
D 23 S	9 55 3 20	0 5 1 5		7 6 85	L L	36 21	D b l L w L w
D 24 S S	9 10 10 10 0 9 45 8 55 9 3 23 28 21	5 3 1 5 2 5 4 1 3 2 4 2 0 5 1 4	6 14 5 7 18 5 11 1 27 5 60 5 61 12 7 0 3 49 58		L L L E D L L L W W W W W W W W	21 48 24 1 4 36 21 24	D b l L w L w I D b l T h l t l L w L w S N t
D 25 G N	J 44 44 4 38 3 0 30 7 20 26 5 22 0 56 51 0 43 48 18	1 1 4 3 5 5 1 7 0 1 1 1 7 1 1	70 65 63 17 37 29 23 4 5 12 19 33 3 43 53 56 4 5 21 14 1 16 20		I I L I L F L L E E E E I W W W W W	80 30 7 (0 ± 30 12 10 30 15 & 12 1 12 30 21 18 90 30 3 20	B l b t d t h d f m l l L L w D b l A b h L L
D 26 S S	9 30 28 8 5 8 59 5 50	2 2 0 0 5 1 8 4 2	77 52 7 3		D E E E E E D L	24 48 60 4 24 30 4 4	D b l l t E t V y f t

[illegible]

D t d b	M M F	B	L t t d		L m l	H ght	R m k
			N th	S th			
1905	M						
J y 31 SS	10 15	7 0 3		45 18 26 5 38 39 5 69 38 25 5	E E I F E E W W W W W	42	L w l t g L w f t b l T t f l k
	9 3	5 1 5				18 24	L w
	41 38	2 9				21 36	L w f t
	33 8	1 5 5	0 5 62 5 71			48 80	A h w t h t l p l l S N t
F b y 1 GN	J 4	1	45 12 5		E E E I E I W W W W W	10 0 15 15 30 15 30 20 45 2 20 35 20	
	51 50	3 1		6 17 5 3 5			
	47 45 44	3		45 65 82 19 5 5			A l d t k
	11 5	1 2 5					
	1 57 56 56	1 4 2	16 5 68 68				l b l D D b b b b ght
D 2 SS	10 43 10 10 10	5 5 4 4	11	6 5 12 5 18 31	E E F E I	24 21 24 24	Oh l t h y b ght w t h l w y b g h
	6 4 38 34 31	1 5 0 5 1 5 4 1 5 2 5 0 5 2		6 2 6 4 6 6 18 J	E E W W W W W W W W W	24 5 4 24 21 30	A l d b l S l d d L w L w
	25 5 25	2 0 5 2	14 28 62 64 5 67			48 48 21	
D 3 GN	9 50 50 11 50 43 40 9 50 0 0 50	0 5 7 0 5 1 5 0 5 4	56 8 5	25 35 64 5 15	E E L L E W W W W W	45 15 30 30 45	C O l g m
			29 36 66				O O C O
D 4 SS	9 5 30	5 2 1 1 1 2 5 3 7 27 25 19 10	70 58 49 5 21 16 12 6 2 3 62 71 74 82 64 50 18		E F E F E E F E E W W W	7 & 90 4 21 21 30 34 80 80 30 24 24 24 24	L w C t d b y t k t t p L w b ght E p t D I L w t h k d Th b ght p m l l p t
							t d t th

D t d b	H M M T	B	L t l		L n b	H l t	T m k
			N th	S th			
1805							
F b y 4 S b				9	W	4	
				6	W	20	
					W	20	
		10	19		W	30	
			33		W	30	
			37		W	30	B d l t l t h d f t l h m p h
	9 54		41 5		W	24	t l t
	51	2	41		W	60	
	15	9	6 5		W	30 3 48	
D 5 G N	10 35	0 5	79		I	1	
	32		59 5		I	0	B d t t p
	90	4	7		I	30	B h t
	27	2		10	I	1	l i n l t l
	(	0 5		9 5	L	4	
	(	1		63	I	3	
	2	1		67	I	30	
	43	0	34 5		W	1	
	43	4	4		W	10	
	38	(	6		W	10 3 30	
D 6 S S	10 6		62		I	4	
	12	4		62	I	10 30	
	9			71	I	4	
	45	5	41 5		W	2	y f n t
	41	1	62		W	10	
	35	1	6		W	48	
		1	70		W	20	
D 7 G N	9 4	1	61		D	1	
	22	2	54		I	30	
	1	1	1)		I	30	
	12	2	81		I	10	
	8	2	23		I	30	D t l l f l i b b t t t
	(	2	2 5		F	10	t p w t l t l t t l
	5	0 5	1		L	15	
	0			21 5	I	4)	
8 55				61	I	4	
4				68	F	30	
50	1			82	W	1	
9 41	2	1 5			W	20	F t l
89	1	21			W	30	
36	6	11			W		
33	0 5	47			W	15	
80	8	61			W	10 3 10	C l n g p l l
30	1	2			W	30	
D 8 S S	9 11	1	61		L	1	
	38	0 5	6		I	21	
	31	3		20 5	E	4	E l t
	20	0		68	I	1	
	20	0 5		60	L	10	
10 30	0 5			61	W	30	
2				46	W	30	
	1			38	W	21	
	6			30	W		L w
	20	2		5	W	21	
	13	14	17		W	60	y b g h t p t
	0	1	34 5		W	42	
	1	1	38		W	42	
9 50	7		65 5		W	60	
D 9 G N	9 22	2	13		E	10	
	20	3		6 5	L		
	18	1		14	D	1	
10 0			16		W	120	S N t
9 58		3	42 5		W	60	

D t d b	H M M F	B	L t t d		L m b	H h t	E
			N t h	S t h			
1905							
F b y 10 S S	11 85		56		E	30	
		2	4		E	10	
		1	37		F	10	
		1	32 5		L	10	
	38	2	5		L	24	
	31	8		7 5	L	4	
	90	8		1 5	D	24	
	9 26			2	L	30	
	11 28	1 5		46	E	21	
		8		61	L	30	
	9 23	1		79	E	24	
	10 5			31	W	24	
				10	W	24	
	9 5		19 5		W	30	S N t 1
		0	8		W	4	L w b ght
		8	27 5		W	48	
	11 1	2	J		W	48	S N t 2
	33	8	66		W		
11 G N	J 33		7		E	60	Sp l t t t p
	30	1	50 5		L	20	B d t t p n O
	27	4		2	L	30	
	25			15	E	15	D t h l f m t h l m l l
				45	J	90	l m d f f t O
	0	1		6	L	8	
	15	15		63	D	90	V y f t t t l H ght 10
	10 10	1		67	W	0	
	20	0 5		63	W	30	B ght
	0	6		1	W	30	M t l l
	J 50	5		14	W	60	S N t
	45	0 5			W	1	
	44	6	10 5		W	00 & 90	
	40	2	15		W	30	D b l
	38	1	39 5		W	3	H ght 60 O
			63 5		W		
D 1 S S	J 30	1	3		L	30	
	36	2	2 5		L	24	S N
	31				E	1	B b 2 C
	10 0	3		6 5	W	60	
		1		3	W	4	L d b l
	47	2	5		W	4	
	11	0	6		W	24	S N t
D 13 C N	9 9	0 5	64		L	30	F l f w y n b t h l
	56		18		E	30	
			7		E	46	
	0	5		16	L	27	
	48			46	F	30	D b l
	15	2		51	I		
	1C 25	1		34	W	15	
	22	2		28	W	6	
	1	12		0	W	7	
		1	13 5		W	15	
		7	23 5		W	3	
	0	0 5	4		W	25	
	0	1	47		W	10	
D 11 48	9 23		0		L	24	
	16	2	11		L	30	
			0		L	4	D l i f l l l
	5			10	L	60	
	55	6		1	E	80	L i t l d l y l g
	9 8			60	W	48	
	53	2		1	W	30	
	49	8		8	W	24 & 48	
	43		10		W	16	
	43		13		W	10	B d t l
	0	4	18		W	24	S N t
	35	1	46		W	24	
	4		4J		W	24	
		1	83		L	24	

D t d b	H M M I	B	L t t d		L l	H g l t	R m l
			N t h	S t h			
1905							
F L y 1 G N	9 25 25 2 2 5		2 24 8 22 20 5 17 12		I F B I L T D L L F E W W	0 20 20 20 20 12 0 1 12 1 80 ± 10	L p t p k L w
D 11 S S	10 20 16 16 16	1 1 1 1		16 20 22 25 70	T L I I L	1 24 14 1 4	S N t
D 17 G N	9 20 10 0	1 ( 5	23	21	I W	0 30 & 15	
D 18 S S	9 14 8 6 48 48 9 9 29 5 2 20	1 8 3 2 2 3 1 0	(7 ( 14  1 15 4	17 8 31 45 69 50 7	T I F I D E W W W W W	1 84 24 20 1 J 30 48 36 24 1 30	B g h t S N t l l l t L
D 19 G N	J 18 1 9 7 0 0 47 45 1 38 38 8 31	8 0 3 1 3 J	29 22 7  35 3 35 55		I I I L I J W W W W W W	50 3 1 1 1 10 20 & 1 30 & 15 15 2 19 1 20 15 1 30 & 10	S N t U l p h h i t d t l l l t l l
D 20 S S	9 25 21 10 52 5 10 10 8 55 9 5 4 8 31 77	15 2 2 2 2 4 9 5 10 3	61 42 29 26 11 6  6 10 85 0		I I I T T J D W W W W W W	1 30 40 ± 300 ± 36 96 10 86 60 36 21 48	B l t 10 n C B t d t L t + 38 I C C B d t t l d l l l L w l h t V y l l y h p l B d t t p S N t l L S N t 2 H g h t 65 C



[illegible]

D t l b	H M M I	B	L t t l		L m b	I f g l t	R m l
			N t h	S t l			
190							
F b y 25 G N	10 48 45 45 1 38	8 05  18	73 (4 58 40 20 3		I E L D D D E D I I I	45 15 1 4 (0 & 75 20 0 30 30 1 100 30 & 15 15 15 30 30 60 30 30 4 15 10 0 20 30 1	D t h d f m h m p h S N t 1
	80	0		0 5 11 13 23	E D I I I	0 30 30 1 100 30 & 15 15 15 30 30 60 30 30 4 15 10 0 20 30 1	
	9 38	14			I	100 30 & 15 15 15 30 30 60 30 30 4 15 10 0 20 30 1	
	22	05 05		40 5 68 1 5 40 35 25 17 13	E F I W W W W W W W W W	15 15 30 30 60 30 30 4 15 10 0 20 30 1	
	20	8		68	I	30	
	15	2		1	W	30	
	11 2	5		(15	W	60	
	0	0		40	W	30	B d t t p
	10 5	1		35	W	30	
	55			25	W	4	
	55			17	W	15	
	54	1	10 5	13	W	10	
	4	05	19		W	0	
	51	15	52		W	20	
	50		(4		W	30	
D 26 G N	10 2	1	77		I	35	
	20	15	01		I	20	
	19	15	3		I	30	I t
	17	15	15 5		I	30	
	17		42		I	25	
	13	10	23		L	30 & 40	T l m t l m l g t I t + 33 L
		)		5	F	50	
		15		125	I	30	
	0	5		19	I	18	
		5		28 5	I	30	
				3	I	15	
	0 5			10	I	1	
	0			7	I	30	
	45	7		7	W	10	
	10 10			(1	W	1	
	37	1		38	W	20	
	3	2	7	8	W	30	
	31	2	28 5		W	30	
	32	2	31		W	1	
	30		0		W	1	
		05	50		W	0	
	24				W	10	
D 27 S 4	10 20		79		I	30	
	18	1	70		I	4	
			(5		I	24	
		25	6		I	21	
	10 8	1	48 5		L	0	
	8	2	14		F	18	
	8	1	41 5		I	5	
	2		29		I	24	
	9 58		2		L	30	
		05		2	I	0	
	45	20	16		I	48 & 24	
	20	45	43 5		I	48	
	21	2	60		I	(0	
	16	15	15		I	3	
	10	2	5		W	)	
	7	2	71 5		W	24	
	4	2	68		W	8	
	0	05	65 5		W	12	
	10 12		51		W	3	
	44		42		W	5	

D t d b	H m M V T	B	L l		L mb	H ght	R m k
			N h	S th			
1905							
Γ b y 27 98	10 40	1	10	1	W	30	[ t l d f l ph
	35	1	14		W	21	S N t 3
	31	8	6		W	15	Γ p f w p l l t l m b f 6 t w t
		16	49		W	15	Tw l h n t d t h t l
	28		60		W	81	B l th m d d l w t t p d b
	22	1	78		W	24	
D 28 GN	10 3	3	615		E	20	
	98		47		I	15	
	8	16	42		L	15	
	2	21	15		I	0 & 45	A f p m n t d t n th
	J 8	3		5	Γ	70	C
	10 20	2		13	D	20	
	11	11		15	L	12	
	14	15		10	E	0	
	14	25		435	D	35	} C t l by f t l
	9 8	1		6	L	20	O
	10 11	1		9	E	30	
	10	1		6 5	D	20	P m O lightly l
		6		9	W	5	
		2		2	W	4	} S N t 1
		1		65	W	120	Γ nt
	2	1		33	W	15	
	50	05			W	15	lightly b l nd l gh O
	50	05		24	W	35	
	50	0		2 5	W	35	
				1	W	35	
	9 8	1		9	W	15	S N t
	46	3	27		W	4	C
	42		40		W	20	T p m t l n b t L t + 22 w t
		1	51		W	1	
	40		59		W	12	B d l b ght t t l w } S N t 3
							d f t t b
	98	16	735		W	10	
					W	20	
M 11 88	10 32	4	63		Γ	30	
	30	2	48		E	24	D bl
	5	6	5		I	48	P m O b d by b t l t b
	9 30	10	7		L	180 & 81	(10 17m)
	11 13	15		6	D	24	S N t
	11	3		55	E	24	
		3		1	L	36	
		2		8	D	30	
	5	2		63	E	30	
	3				E	30	
	0	3		42	W	60	
	10 55	2		4	W	4	B l htly b i { p b tw th tw
							{ p m all d p
							(10h 17m)
	3			4	W	24	
	8	3		3	W	4	
	15	2	3		W		L w
		2	44		W		
	98	1	59		W	30	
	35	1	3		W	36	
D CN	J 58	6	8		E	15	
	5		7		D	60 & 30	
	54		49		E	0	
	49		29		E	60	B t C p t l t L t + 41 E
	10	75	95		E	240	S N t 1
	10 36	2		3	E	30	Γ t
	38	3		32	F		I w
	36	2		8	F		L w
	5	3		605	Γ	50	
	32			7	E	60	S N t 2

D t d b	H M M T	B	L t t d		I b	H ght	R m k
			N t t	S t h			
1906							
d h 2 ( N	10 0 21 2 0 9 0 10 0 17 17 16 1 13 3 10	3  1 1   1 1   b	5 10 15 5 1 32 5 35 70 5	82 79 6 13 24	I W W W W W W W W W	6 15 20 4 2 10 15 20 30 4 1 1 15	C B g l t l y g b t t f d O (91 0m)   M m (91 0 )
D 8 SS	10 1 1  10 8 9 58 0  35 21 0 9  10 48 45 41 37 30  5 6 51 10 8 21	1  1 2 2 8 1 6 18  1 2 2 1 0 5 2 2	(7 (3  7 1 9 21 21 15   7 31 47 51 62 67 5	16 37 16 ( 82  83 C 2 5 16 28   7 31 47 51 62 67 5	L T  L I I I E L T I I I W W W W W W W W W W	72  36 15 38 120 20 20 80 21 24 72 108 90 30 1 12 30 4 0 0 24 0 30 31	W t g t l b p B b t f C D 11 I T l f t n C L b g l t D t h d f m h O 11 H g l t l y 10 O 11  N Mg d f l l g l t t L t - 34 E B d t l d d l T f l O p m t d l m t t t h l p m (L t - 7 E) B b by 2 C C l p l l t b l 7 n t h d  T p m n l d by l l l l t l m b C I l d t h d f b S l t g T p l g  O D 11
D 4 SS	9 2 27 7 7 27	1  5 1	71 5 74 83 99 5 2 5	71 5 74 83 99 5	F I W W W	30 30 10 70 5	} s
D 5 GN	9 5 0 15 19 11 J 10 5 5 0 9 50 45  40  95 85 80 30	8 6 12 2 1 1 7 0 5 1 2 5 3 10 1 1 1 4 1 1	98 5 18  11 20 17 (1 5 ( 5 0 62 5 68 5 31 5  1 8 20 5 24 27 5 30 42 5 64 68	11 20 17 (1 5 ( 5 0 62 5 68 5 31 5  1 8 20 5 24 27 5 30 42 5 64 68	T I I I T F D W W W W W W W W W W W	30 2 2 20 65 20 1 20 10 1 42 20 1 15 10 30 1 15 0 4 0 80 45	

D t d b	H M M T	B	L t t d		L b	H ght	R k
			N th	S th			
1905	M						
M h 6	SS	9 4	56		E	30	
		85	7		I	60	
		28	0		L	5	S N t
				6	E	7	T p f O p m l g th n hyd g
				59	E	15 ±	
		1		62 5	E	20 ±	
				82 5	E	72 & 64	C p m 90 hgl d t d t L t
		8 55	4	88	W	36	-76 E t b
		55		58	W	15	
		10 0	1	58 5	W	30 ±	C
		15		1	W	38	
		9	2	3 5	W	50	C
		8	5	19	W	60	
		9 55	3	62 5	W	86	
		55	1	88	W	36	
D 7	GN	9 26		56	E	30	
		28	2	86	E	20	
		23	2	32	E	20	
		20	1	23 5	E	20	
		20		21	L	15	
		10	3		E	75	O p m t l t L t + 2 E
			0 5	13	E	18	
			1	27 5	E	15	
		0	1	70	E	15	
		50	3	78 5	E	15	
		45	4	61 5	W	15	
		42	3	93	W	75	
		36	3	26	W	20	
		36	0 5	17	W	50 & C	
		36	0 5	19	W	18	
		30	3	22 5	W	12	
				62 5	W	30	
D 8	SS	9 24		89	L	20 ±	C
		57	2	60	I	24	
		45		37	E	1	B th th m t d by l d t k
		45	3	33 5	D	1	wl l n t th lmb t L t + 28 E
		40	4	17	E	15 ±	
		25	0 5	10	E	42	D bl II ght 150 C
		19	15		E	60	
		13	0 5	21 5	E	30	
		0	3	65	E	36	
		10 32	2	67	W	60	S N t
		28	5	61 5	W	24	Oh g d t 10h 35m
		18	15	46	W	120	Sh p d f t C
		18	15	34 5	W	48	T p t d by f t t k Ab t l l f
		10	8		W	12	d l t l t f L t + 28 W
		2	2	62	W	48 & 4	B d O
					W	75	C p m l g d m t th lmb g
							t L t + 72 W
D 9	C N	9 2	1	66	E	20	
		24	3	60 5	E	40 & 2	
		21	4	49	L	60	
		23	1	43 5	E	80	
		18	0 5	37	E	20 ±	C
			1	20 5	E	45	C p n w O h l t L t + 17 E d
		1	15				t l d t L t + 30 E
				8	E	15	
			4	19	E	30	B k b t d t l l f m th h m ph
				63	E	15	
			2	63	E	45	B d t t p
			1	50 5	W	20	H g t 5 C
			0 5	39	W	25 ±	
		50		38	W	60	D t l d f
						35	h m ph } O t d t b n O

J t d b	M M T	B	L t l		I mb	I ght	R
			N tl	S th			
1905							
M 19	GN	J 0		35	W	30	B d t t l C t l t b C
		13	10	18	W	50	
		31		29	W	10	
		33		37	W	15	D bl
		37		42	W	30	D t h d f m h h pl
		3	8	43	W	55	
D 10	SS	9 0		59	E	24	
		31		43	L	48	F f w t d l m t l m b t
		34	1	35	E	21	L t + 49 P C
		21	6	28 5	E	48	F l m t l b t L t + 12 E
		8	0 5	15	D	24	T p t h b l O
							F t t l b l m I m n
		3		1	E	60	O h b g C
		3	1		E	20±	F p b d
		10	0 5		F	36	C
		8 3			W	24	
		3			W	4	Al t d t l d f t h h m pl
		3			W	21	
		10 33	1		W	40±	
		33	1 5		W	40±	E pl N l Mg l t d b ght with
		33	4		W	15±	l l l t t b 30
		38	4		W	30	
		9 3	10	14	W	70	O
		10 15	0 5	28	W	48	
		10	6	17 5	W	48	
			1 5	61	W	15±	B g l t d bl S N t
D 11	GN	31		50 5	E	150	S N t
		36	2	48	L	60	
		2		41	I	25	F nt
		5		38 5	I	15±	F t
		20	8	17	I	50	
		15			D	20	
		10			W	12	
			1		W	15	
					W	20±	
		10 8	4		W	30	F t
			5 5		W	25	
		0	14		W	0 & 30	Oh g g m l t h g l (
		9	0		W	25	
		50		19 5	W	20	
		70	2	24	W	1	
		15	8	41	W	50	W m O
D 12	( N	9 33	2	30	I	30	
		32	3	21		35	
		30	1		D	20	
					I	1	
		27			D	15	D bl
		20			I	5	B d t t p
		16	0 5		F	5	
		16			L	0	
		15			I	15	D t d f m t l l m l h
		11	7		W	120	C \ y f t
		58	0 5		W	20	
		55			W	45	
		50			W	0	
		47	1 5		W	12	
		47	1		W	30	
		46			W	35	
		4	4		W	15	
		40	6		W	10	
		35	0 5		W	15	
D 13	SS	9 35	1	48	E	36	
		35	1 5	44	E	24	
		30	4	32	D	24	
		30		29	E	24	

D t n d b r v		H M M F	B	L t u d		L m b	H g h t	R m l
				N t h	S t h			
1905								
M h 13	SS	9 18	3		105	D	45	l p l m t m t t l l m b g m h y d d d t m l t t l y O t L t 17 E B d p t b
		1			24	L	90	
		7	1		285	L	48	
		0			9	L	60	
		8 55	1		63	E	24	N M l l b g l t t b
		55			(7	E	24	
		10 9	3		3 5	W	12	
			6		26	W	175	
		9 58	3		14	W	36	S N t
		3	15	46		W	30	
D 14	GN	9 34	15	66		E	25	C
		34	3	95		F	5	(
		0	2	19		E	12	
		5	1	1		E	10	H g l t 15 O
		0			14	L	1	C l f l d l y
		8 10			16	D	15	
		40	0		0	E	45±	S N
			3		35	D	30	
					6	D	30	
			05		28	E	30	
		35	2		43	D	30	
		3			50	F	1	
		35			3	E	15	D t h d f t h l m p h
		3			5	E	30	
		3	25		76	D	20	F m l l
		30			79	D	15	
		9 4	15		61	W	20	
		11			1	W	15	A t m f l w g w t } C t d t g t h w l f m t l t p O } t b n O
		41			8	W	20	
		40			85	W	0	
			25		4	W	35	Slightly t l l O
					05	W	5	
		3	05	3		W	20	
				7		W	30	
		0	3	105		W	30	D t h d f m t l h p h
				1		W	20	
		8		19		W	0	
				23		W	12	
		2		3		W	15	A l l k
				66		W	15±	
			1	80		W	1	A h l l
D 15	SS	9 1		23		F	10	F t p t t p H h t 60 O
		9	3	4		E	36	
		2	3		4	E	96	
		8 4	1		27	D	30	T l l p y f t
		45	7		505	F	45	M m O
					70	D	0	V y f t
			1		81	W	1	
		2	2		61	W	38	
		10 9	2		4	W	48	
					12	W	54	B t l t l l b b d O
		9 5	05	25		W	4	
		5	05	7		W	30	
			05	85		W	18	
		5	1	1		F	0	
			0	17		W	20	F l l l d l A d d { E l t N M g d F l y b g h t
		4	05	16		W	20	
		40	5	5		W	20	
		40	15	30		W	24	
D 16	GN	9 16	15	61		E	5±	
		10		22		F	90	S N t
		10		175		E	0	A l l t f t g b t w t h d t h l t p m
		5			1	D	50	
		0	1		1	D	30	
		7	9		2 5	I	75 & 30	
		8 55	1		4	D	20	

D t	d b	H M M T	B	L t t l		L m b	H g l t	R m l
				N t l	S t l			
1905								
Mar h 16	G N	8 55 52 1 27 9 1 0 15 14 14	1 7 15 1 1 20 9 0 05 05	16 56 5 3 13 23 18 5 45 3 4 70	E E E W W W W W W W W	20 30 45 60 4 30 65 30 1/2 35 40 2	B ght tth tw l th n tth mddl B d t b C 3 b d t b C C F nt C nt C	
17	SS	J ( 12 0 8 1 24 9 4	1 6 15 7	(1 21 16 24 12 53 4 31 6	L L L F F W W W	21 18 1 18 1 21 1 ± 18 0 ±	D bl B l t t p E pt Cl l t f t g w y f m th h b	
D 18	G N	J 41 11 10 5 3 5 53 0 48 5 40	3 7 6 1 3 1 05 2 1 1 13 05	8 18 5 J 54 82 74 5 65 5 16 33 22 7 23 5 37 41 68	E E E I I W W W W W W W W W W	30 J 55 10 5 35 30 1 30 7 18 2F ± 20 ± 2	C l m n t l f m L t + 38 D t + 61 E C An t l d t l l f m t h m ph C C O C C S h t	
D 19	SS	9 28 28 4 1 2 8 5 10 1 9 51 39 37	05 0 2 2 1 2 2 10 2 10 2	(1 2 58 2) 9 65 69 18 9 7 3 18 18	F F F E E F W W W W W W W W	18 30 30 4 45 10 30 30 1) 4 4 & 60 30	Cl b t p w b l t 9 12m Fl l m n b g g O B t l t t I t - 1 W	
D 20	G N	9 30 18 18 18 5 13 13 10 8 3 0 40 36	15 05 25 2	63 41 39 83 5 7 J 55 85 48 6 5 82 59 11	F F F F E E F F I E W W W	0 35 35 20 10 15 20 30 15 70 ± 1 35 60	60 l g l d t d t L t + 2 F C p m t d f m L t - 38 D t L t - 15 E C p m l d t l t L t - 67 I t b N t q t t h g th l l O I m lightly gg 170 h g l	



D t nd b	H ur M M T	B	L t t d		L mb	H ght	R m l
			N th	S th			
190							
M h 20	GN	8 59 9 35 35 34 32	7 28 5 32 40 49		W W W W W	20± 15 15 20 20	O
D 21	SS		25	64	L		A p t t y l g l m Sky b m l ly b f t h h t l d b d t n d H ght O 35
		9 45 45 29 42 42 2	25 43 39 11 1 0 5		E E E E E E	48 24 80 20± 20± 20±	D bl O C
		8 55 19 12 9 42	2 15 9	68 5 60 48 5	E W W W	10± 24 48 25±	O t n O t l b D bl t l l t g d t h d p m n b t l m
D 22 S	& G V	8 25 11 40 10 10 40 8 52 47	15 16 1 1 25	5 9 40 5 77 5 64	E E E W W	20 20± 90± 90± 10 40	O S N t B d t t p S N t
D 23	SS	8 24 2 18 13 11 10 6 6 7 50 t 8 5 8 45 40 87 38 33 29 28	3 5 2 2 15 1 1 12 2 5 3 15 15 61 8	64 41 5 22 5 14 11 5 0 15 18 27 38 42 5 63 5 2 0 5 8 80 5 61 8	E E E E D D E E F F F W W W W W W W	42 38 30 36 36 60 80 48 10 24 36 2 70± 36 30 24 30 30 & 24 24 24	T p f t l d t h b p m n t d O C t l t t p D t h d f m l m p l S N t O l g t l y d p l d A h l k
D 24	GN	8 36 34 32 32 40 20 22 20 20 15 10 9 5 8 7 0 0 58 55 54	1 2 1 0 5 1 1 0 5 8 1 15 2 3 15 1 0 5 8	65 45 15 12 8 5 18 15 17 18 26 35 39 5 50 54 5 65 5 62 5 19 6 19	E E E E E E E E E E E E E E E E E E W	30 40± 30 30 30 30 2 24 50 22 45 80 15 60± 30 45 25 55 2± 15	C p m w 50 l g h n d m t l m b t L t - 16 E D t h d f m h m p h T p m t l m b g t L t - 32 E O p m t d t L t - 19 E C T p m t t h l t p m C p m m d b d t b

D t d b		H ur M M F	B	L t t d		L m l	H l t	I m l
				N t h	S t l			
1905								
M h 24	G N	8 50		23		W	35±	C p m b t l w } O t l t g t l l g l
		43	1	25		W	25±	
		40	1	6 5		W	0	
D 25	G N	9 4		71		I	3 ±	C S N t O l m t l t L t + 52 F C p 90 l l l m l l g t t p C l t f l l m T l l A l t b t 40 l g l (
		40	6	47		I	10±	
		30	1		8	I	10	
		30	15		11 5	I	10	
		20	0		31	L	1	
		1	1		37	I	30	
		15			6	W	30±	
		50	8		34	W	0	
		45	0 5		21	W	0±	
		54				W	4	
		1	1	23		W	40	
		10	2	51		W	30±	
		54		61		W	60±	
D 26	G N	9 5	2	70		I	0±	( l l m t p l l t L t + 71 l R l l m t p l l t l l O l t d L t - 10 F F p p l t l t l w y O p m t C C O p m 5 b l t l C C l m 5 l h
		5		67		E	5	
		0		18		I	60	
		8 8			207	L	1	
		8			35	I	1	
			3		30 5	I	45	
		0			18	I	10	
		40	1		0	I	0	
		35	2		6 5	I	60	
		30	3		69 5	W		
		8			7	W	0	
		25	4		03	W	5 & 30	
		9 23			11	W	40±	
		16	27		38	W	12 & 10	
		8 84			8	W	L w	
		9 14	0 5	0		W	20	
		8 84		6		W	10±	
		84	3	7		W	30±	
		9 10	4	0		W	80	
		8		12 5		W	30	
8	0 5	68		W	30			
D 27	S S	10 6	5	5		F	21	C B h f t l t l l L t - 23 E d - 6 E C I t ( p m t l t I t - 61 E C M d t d f t I l g l t l l t l l t m l O M l t d f t I l g l t l d t b d t m l
		9 31	2	25		E	60	
		58	0 5		1)	I	30±	
						I	80	
		2	0		31	I	24	
		0	1		36	I	48	
		91			51	L	20±	
		41	1		86	I	48	
		36	2		3	W	48	
		34			58	W	20±	
		34	5		18	W	50	
					8	W	P	
		84	3	15		W	65	
10 40	2	24		W	20			
		60		W	P			
D 29	S S	10 35		40		E		T l l O p m b d S N t O p m l l d } 10 h 36 C p m l d l l t b
			1		1)	I	40±	
			2		25	I	35	
					18	E	30±	
		15	2		46	I	5	
		11 15			68	E	40	
		10			62 5	W	45	
		10 5	1		36	W	60±	
55	2		32	W	35±			

D	d b	H M V I	B	L t d		I m b	H h t	R k
				V h	S t l			
1 05								
M	h 29	SS	1		26	W	10±	
			3	13	1	W	L w	O
			1			W	3(±	
			4	)		W	30	O p m t t L t + 66 W
						L	L w	(
D	30	GN	12	46		E	120	tl l m l j g t t th
			8	25		F	60 ~ 35	th d C H g l t 0
			20		2	D	60	O p m m t n
			2		4 5	E	15	
			3		64 5	W	15	O p m l g d 80 l gh
						W	35	D t l l f m h m ph
			9 18	0	38 5	W	0	O p m b l d 50 l gh
			11	5	2 5	W	30	
			9	0 5	18	W	50	
			8 3	1	7 5	W	5	O
			4 5	1		W	0	
				1	21	W	1	
				1	24	W	0	
				1	42 5	W	0	
			2	1	45	W	30	
D	31	SS	2	30		E	90	S N t
			2	21		D	60	
			1	19		D	4	O t t g t l t b
			1	14 5		F	15±	
					8	L	18	
					34	D	7	D t h d f m l m ph b t t l t
								l t p m
			11		16	L	21	
			5	1	6 9	E	10	B l t
					81	W	10	
			9	0 5	1 5	W	40	
			9	1	10 5	W	5±	O
Ap	1 1	GN	2	(3		I	0	C
			3	41		I	0±	
			2	81		D	30	
			5	16		F	30±	
				8		F	30±	
			1		0	L	2	C
			2		3	W	90	C
			1		42 5	W	30	C
					17 5	W	20	
			1	13		W	40	C
			6	66		W	0	C
D	2	SS	3	65 5		E	50	C
				16 5		I	0	
			2	26		E	21	
			2	25		F	15	
				20		E	2	B d t t l
			5	1		E	15	
			2	6 5		E	15	
			2		1	E	15	
			1		3	F	20	
			3		60	E	10	
			4		6 5	E	40	C p m m t
					48	W	10	
			8 2		6 5	W	90	
			9 20		2	W	10	
			( 5		19	W	0	
			1			W	55	C Cl g l dly H ht 75 t 8t 83m
			3	5		W	24	
			1		6	W	10	
					12	W	20±	
					23	W	20±	
					37	W	20±	
					41	W	20±	
					44	W	20±	
			8 5	2 5	60	W	30	O p m b l by 3

[illegible]

D t n d b	H M M T	B	L t t d		I m b	H g l t	R m l
			N t l	S t h			
1905							
Ap 18	SS	8 55 52 45  42  1 15 9 47 45 42 38 85 32	15 05       19 48 5 63 5 68	86 40 2 88 76 68 68 35 5 9       48 5 63 5 68	L L E W W W W W W W W W W	80 21 24 18 4 10 10 48 18 18 30 36 20	D bl   D bl D
D 9	SS	9 25 23 20 16 6 10 7 5 8 45 48 9 50 41 40 38 37 34 32 30 29	4   45 1 1  2 5 1 1 25 15 35	61 60 42 26 22   85 41 56 71 64 50 34 5 20 9 1 39 46 58 5 67	E E E F D E F L W W W W W W W W W W W W	20 36 30 36 24 20 18 20 38 20 18 72 24 20 18 31 30 18 36	B l t t p  D bl C D pl d l g l t y t d d  D t h l f m l m ph R p d l y l g g  A h l k
D 11	SS	9 0 0 8 52 50 47  45 9 8 8 42 38 30 30  22 18 15 9 8 35  30 25  20  17 18 11 8 9 6 4	1 4 2 25 05  2 2 10 5  9 05 15  05 05 05 15  7  05  8 0  4 1	64 60 46 15   16 22 34 42 47 53 5 77 81  74 70 66 64 38  27 5 18 5  18 5  85 88 5 48 5 58 65 69 84	D E D D E  L F L D E E E W  W W W W W W W W W W W W W W W W	48 60 12 36 18  20 20 20 1/2 36 30 10 18 1/2 18 18  20 108 54 20 1/2 60  60 90  18 60  18 36 20 20 1/2 36 24 12	F t C l T p t d f t y b g h t d 5 h g l m t l m b g t L t + 4 I E p t G 5 h g h C C A h l k B d t L t - 22 F  D t h d f n l m pl  T p l t 30 C d m t l m b g t I t 30 W B d t t p } O t l O D C f p m t l m b g t L t - 39 W D t h d f m l m ph D t d f m h m pl O A h l k S m w h t t l l C C A q h l k

D t n d b	H M M T	B	L t t d		L b	H ght	R m l
			N th	S tl			
1905							
Ap 112	G V	9 8	2	61	I	40	
		0		19	I	5	
		0		14	L	20±	
		8 55		0 5	I	1	
		50	1 5	16	I	1	A gl l t d t h d f h pl
		40		21 5	I	90	D l l
		9 9	0 5	4	I	1	D l d f m l m ph
		42	3	9 5	W	30	
		10	1	18 5	W	22	D bl
		38		3	W	20	
		30	6	24	W	2	
		20	2	33	W	30	} O t l n C
		20	0	38 5	W	20±	Sl g l t l y t l l O
		18		53	W	30	
		1		64	W	20	Alm t d t l d f m l m pl
D 13	SS	8 58	1	61	L	60	
		4	4	25	L	24	
		1	4 5	19	I	15	
		40	0	12	F	24	D bl
		45	1	7	I	0	
		41	1 5		I	20	
		39	1	24	E	21	D bl
		9 35	1 5	41 5	D	30±	O D bl
		8 32		3	W	30	
			1	64	W	12	
		30		61	W	18	
		25		56	W	60	B d pt tb
		22	0 5	19	W	12	
		9 21	1	4	W	12	
		6	6	98	W	12	
				26	W	24 1 30	
		20	1 5	21	W	12	
		13		12 5	W	21	
		9	3	20	W	60±	Sh p d f t O
		35	3 5	37 5	W	1	
		7		42	W	2±	O
			1	51 1	W	48	
				63 5	W	19	
D 14	G N	8 55	1	58	I	60	
		0	0 5	48	I	10	O p t d t L t + O L
		47		27	F	40	
		47	2 5	21	I	10	B l pt tb
		1	0 5		I	15	
		1	1	7	I	30	
		42	1	21	D	35	
		9 9	1 5	12 5	I	20±	O
		8 39		44	I	30±	
		39	0 5	46	F	20	
		36		68	I	15	
		35	1	83 5	E	15	D bl
		32	2	64	W	35	
		30		51	W	30	
		18	1	10 5	W	7	
		9 15	1 5	31	W	25	D bl
		12	3		W	15	
		8	2 5	8	W	30	
		7	5	16 5	W	0	
		4	5	24	W	10	
		0	1	37	W	30	
		0	1 5	40	W	20	
		8 57	0 5	83	W	40±	
D 15	SS	9 22		65	F	30	
		20	1	56 5	E	24	
		10 5	1	8	E	120	B p d l y h g g H l t G C
		9 8	1		E	20	R p d l h n g g B 4 O
		58		16	E	36	
		58		62 5	E	30	
		58		64 5	E	30	
		58	1	81 5	E	30	
		59	0 5	85	E	24	

D t d b r v	H M M T	B	L t l		L m b	H h t	
			N t h	S t h			
1905							
Ap 115	SS						
	8 28	15		6	W	48	
	9 54			62	W	30	
	1	05		51 5	W	30	R p dly l s
	48	4		34	W	50	
	46	1		21	W	18	
	46	1		15 5	W	4	
	4			6	W	30	
	40	8 5	5		W	50	A l l t f t g w y f m t h h m p h
	35	2 5	16 5		W	60	Ch g g l d y
	32	7	20 5		W	45	l d p l d t l l A t w d d
	28	6	45		W	48	V y b g h t
	26	1	60		W	4	
	24		82		W	21	
D 16	GN						
	9 10	1	75		E	15	
	9		60		E	50	C p t l m b g 2 b l t b 70 h g h d
	0		3 5		E	15	B d t t l
	8 50	1	18 5		E	35	
	4		9		E	60	D t l d f m l b n h y d t C
			4 5		E	10	O t d t t h l t C
		5		14 5	E	0	
	41	0 5		21	E	25	
	39			28	E	15	D t l l f m h r m p l
	39	1 5		31	E	30	
	38	0 5		68	E	20	
	35	0 5		79	E	20	
	35	2		83	E	30	
	3			85	F	1	
	30			81	W	30	
	30	1		66	W	5	
	J 23	3	41 5		W	30	
	26	3	34 5		W	20 & 25	
	1		20 5		W	10	
	0	1 5	2		W	30	
							l l m t l m b t L t - 6 5 W O p
	19		5		W	30	m 6 b d
	8 38	3	14 5		W	50	
	9 17	2	48		W	30	C b l
	15	0 5	51		W	15	
	14	2	65		W	2	
	12	1	88 5		W	10	D b l
D 19	SS						
	10 20	6	68		E	I w	O S N t
	20	1	25 5		L	L	C
	5	2 5	0		E	0	
	2	3	15 5		E	18	B g l t
	18	0 5		2	E	30	L w p m f i t h d
	18	( 5		11	F	24	
	14 45	4		18	E	30	
	40	3	39 5		E	10	
	38	0 5	65		E	35	
	10 20	2 5	68		E	L w	
	20		71		E	50	
	14 8	1	32		W	30	
	11 4		1		W	30	
	10 0		14		W	55	
	20		15		W	30	
	58	14	8		W	40	
	48		67		W	4	
	40	1	69		W	18	
D 20	GN						
	9 9	15	28		E	85	
	8 48	15	19		E	20	
		1	0 5		E	15	
	45	2 5		4 5	E	95	
	40	1 5		17	E	50	
	9 39	4	7		E	0	
	39		69		W	40	

D t n l b	H M M T	B	L t t d		L m b	H g h t	R m k			
			N t h	S t h						
1905										
A p 1 0	C N	8 35	1		65 5	W	20 ±	S l g h t l y t l l C		
		58	1 5		13	W	0			
		55	2 5	27 5		W	40	S l g h t l y t l l C		
D 21	G N	8 41		60		E	30			
		10	1 5	40		E	30			
		39	1	32 5		E	30			
		37	1	16 5		E	0			
		35	0 5	10		F	15			
		34	5		15 5	L	00	M t f t y b g l t N m t l l		
		30			49	F	15	D t h d f m l m p h		
					61	E	30			
		26	5		69	E	75			
		20			73	W	60 ±	V y f t d t h d f m l m p l d b l		
		53	3		26 5	W	0			
		52	5		12 5	W	15 & 35			
		50	3	19 5		W	35			
		46	0 5	33		W	30			
		45	3 5	17 5		W	15			
		44	1	07		W	15			
D 22	G N	10 8	4 5	73		E	25 & 35			
		6	0	51		F	50			
		4	1 5	15		F	1	l h l l		
		1		1		E	30			
		3			18	F	12			
		1	4		30	F	30			
		9 55	0 5		6 5	W	15			
		10 20	1		83 5	W	12			
		19	1		25	W	15			
		17	1		1	W	20			
		6	1	12		W	15	D b l		
		15		66		W	75 ±	D t h d f m h m l h		
		12		69		W	30			
		D 23	S S	9 6	5	64		D	30	
				1	5	51 5		E	24	
				1		39		F	0	
8 56	1			5		F	30	E p t N F d M g l y b g h t		
48					24	F	1			
16	4				36	F	1			
4	1				73	l	20			
	1				69	W	18			
36	1 5				74	W	30			
35					6	W	8	B d t t p		
	0 5				33 5	W	15			
9 2	5 5				5	W	0			
					16	W	10 ±	O t d t l b		
0	4				3	W	10 ±	A h l l		
10	1			17 5		W	20			
D 24	S S			1	1 5	8		W	10 ±	
		10	6	16		W	36 & 21			
			1	6		W	18			
			0 5	81		W	10 ±			
		8 59		81		I	20			
		52	10	45		E	72 & 24	F p m V F d M g l t l y b g h t		
		4	9	16 5		E	21	L p t N F d M g l y b g h t		
								O p m 3 b d		
		45	1	3 5		E	1	O t d b y n h 70 h g h O S V t e		
		42			4	F	48 ±	A t l l w t h b k t h d d l		
		38	1		8	E	60 ±			
			1		15 5	E	40 ±			
		33			4	E	20			
		30			58	E	48			
		4			77	E	15			
		3			8	W	15			
			5	61 5		W	L w			
			6		40	W	L			
		9 19	4		8	W	21			
		15	1		13 5	W	10 ±	D b l		



D t n d b	H M M T	B	L t t d		L m b	H g h t	R m k
			N t l	S t l			
1905	M						
Ap r l 24	SS	9 15		11	W	0	A h k d t h d f m t l h m p h n l f t g b t h l t l m
		14	3	35	W	24	
		12	05		W	24	
		10	1	255	W	24 ±	V y f t
		6	5	42	W	40	
		6	15	455	W	80	O t t b
		6	1	49	W	18	
		8	15	62	W	24	
		1		71	W	24	
		0	05	815	W	18	
D 2	GN	9 0		47	E	12	
		0		45	F	12	
		8 55	05	32	E	25	B g h t
		53		18	E	5	A b g h t t
		49	05	15	D	50 ±	V y f t
		47		155	E	1	
		46	05	215	E	15	
		45	1	335	E	1	Th m l l
		44		435	D	12	
		40		60	D	10	
		40	05	68	L	30	
		9 23		48	W	30	S l t g t w l h t h d t g
		23		42	W	30	b t w t l m 2 l w l m
		20	1	295	W	L w	B g l t
		20		27	W	60	D t h d f m l m p l
		18	15	11	W	1	Th m l l i t
		1	45		W	20	
		7	15		W	20	
		4	05	725	W	80	
D 26	SS	9 9	2	68	E	36	A r l l k
		4		58	F	20	
		0	9	46	L	40	A l h l
		8 56	3	215	D	40	
		54		115	D	95	
		54		8	F	35	
		0		3	E	150	F l l D t h l f m l m p h
		48		65	F	24	
		45		115	L	0	q l d
		42		23	E	30	
		35	4	30	E	35	E l t
		30	15	675	D	3	
		24	2	655	W	24	
		9 31	4	46	W	60	
		25		265	W	60	B d f l k
		18	2	20	W	60	Th t m t d t t p
		18	1	26	W	15 ±	
D 27	GN	9 13	2	68	D	0	
		10	8	395	D	20	
		8 4	35	22	E	40 & 80	S N t 1
		39	1	145	D	90	L w t y l g h t
		34	4	4	D	90	C p m l g l l 80 l g h t 81 45
		34	1		F	10	
		31	05	32	E	20	
		29	05	8	D	15	
		28	1	655	W	45	T p b d n O
		28	1	68	W	20	
		9 2	2	47	W	60	S N t 2
		28	15	90	W	80	O t d O
		28	15	25	W	80	
		18	1	20	W	25	
		18	1	55	W	20	
D 28	SS	8 46	2	68	E	48	
		40	1	485	E	60	D b l
		38	4	41	E	70	
		34	2	84	E	80	

D t d b	H M M T	B	L t t d		L m b	H g l t	R k
			N t h	S t h			
Ap l 28	SS						
	8 20	0	29		D	L 72	
	t 29	2	14		I		
	8 17	3	1		L	72	
	18	2		33	D	30	
	8	0 5		70	E	30	
	6			26	E	20	
	0	5 5		05	W	0	
	9 18	4		0	W	48	
	18	0 5		11	W	30	
	9 1			C	W	150	
	t 10	10		20	W	30	
	0			8	W	80	
	0				W	80	
	8 58	1 5	C 5		W	48	
D 29	CN						
	9 30	5	C 5		D	00	
	24	1	14		I	15	
	21		11 5		I	15	
		1 5	9		F	10	
	2	2	35		I	0	
	22	1	28		I	20	
	20	2	21		I	15	
	20	1	10 5		I	5	
			2		L	0	
	18				I	30	
	10	1	82		F	30	
	16	1	45		E	20	
	14		52		I	15	
	8		62 5		F	3	
	8		65		I	20	
	8	1	68 5		L	40	
	5	4	67		W	50	
	47	2	52		W	10	
	45		35		W	4	
	42	0 5	24		W	15	
	12	1 5	21		W	20	
	8 10	2	3		W	10	
	40		1		W	10	
	10		5		W	10	
	0 10		4		W	1	
	38		16		W	0	
		0 5	59		W	15	
	34		03		W	30	
	34		65		W	(+)	
D 30	CN						
	10 2	1	68		I	20	
	2		C		L	30	
	0	3	58 5		F	40	
	9 8	1	48		I	20	
	10	3	21 5		L		
	8 53	1	28		E	1	
	53	1	28		F	30	
	50	1	3		I	1	
	45	1	68 5		L	3	
	37	4 5	74		W	30	
	35		87 5		W	60	
	54	1	61 5		W	15	
	10 1	0	42		W	1	
	10		28		W	25	
	8 54	1 5	4		W	25	
	54	1	28		W	25	
	10 8		31		W	20	
	7	1 5	87		W	25	
	5	4	68		W	30	
My 1	SS						
	9 0	3	71		E	48	

L t d b	H M M I	B	L t t d		L m b	R g h t	R m k
			N t h	S t h			
M y l 1905	S S	9 20	05	65	D	48	B d p t t b
		11		54	L		S N t 1
		0	11	27 5	I	24	S N t 2
		8 55	05	6	L	30	
		48	3		L	36	C p 2 l d
		9 10	5	27	L	0	D b l
			05	64	D	16	
			05	67 5	W	18	
		8 35	05	86	W	40	
		31		71	W	90	} O t d t t h n O H g h t 1 t g l 28 m n l 1 80 t 10 l 31 m
		28		07	W	150 ±	
		10 0	0	61	W	60	
		J 5		32	W	0	R d p l d t 108 A
		50	05	1	W	30	B d t t p
		48		5	W	30	
		16		12 6	W	40	B d t p
			05	85	W	0	S l h t l y l g O } C n t d t b n O
		10	0	38	W	30	
		35		11	W	80	
		10 31	3	6	W	0	
				71 5	W		
D 2	C N	9 0	1	73 5	L	36	
		20	1	71	I	25 ±	
		20	6	65	L	4 & 35	
		10	4	30	I	45 & 30	V y b g h t M t O
		8 45	1		D	0	
		48		1 5	L	20	P t f t y b l t d l g h t l y d p l d t d
		40	1	19	I	15	
		9 52	2	28	T	15 ±	
		8 30	3	38	I	90 & 60	C N t
		9 5		65	L	30 ±	
		52	15	70 5	E	20 ±	
		9	4	73	W	100	O H g h t (5 O
		1		82	W	20 ±	
		1	4	85	W	30	
		10	3	2	W	30	
		40	1	10	W	20	
		36	3	1 5	W	0	
		35	05	24	W	15 ±	
		34	1	2J	W	0	
		34		81	W	5 ±	
		30	10	84	W	30	
			05	12	W	15	
		24	5	t	W	5	
D 3	S S	8 53		78	L	0	
		5		74 5	I	10 ±	V y f t
		48	5	65	L	4	
		4		65	L	20	
		45	05	44	I	20	D l l
		3	15	31	L	21	
		35	1	8	I	1	} O t d t t l
		3	1	6	T	24	
		8		05	D	24	
			45		I	4	
		19	25	8	I	36	
		1	5	71	L	20	A l l l
		9 35	8	38	W	100 & 48	
		0		16 5	W	0	D t h l f l m p h
				55	W	20	
			05	8	W	15	
		24		16 5	W	0	A l l b t 5 b l s p t f m l m b
							P t l y t d t l m b n C
		0	8	26	W	18	M t O
		10	1	38 5	W	20	D b l
		10	3	48	W	80	D b l t l f t g l d l t t t p
		10		4	W	80	
		0	4	63	W	100	F t O
		8 55	1	84	W	20	
D 4	G N		1		E	15	
		9 10	2	1 5	L	25	
		8	15	0	E	30 & 25	
		8 48	05	90 5	L	0	
		47	3	61 5		0 ±	Th l t n th
				66 5			

[illegible]

D t d b	H M M T	B	L t t d		L m b	H l t	R m l
			N t h	S t h			
M y 7 1905 S	M						
	8 59	1		68	D	24	
		1		79 5	E	25±	
	50	1		78	W	18	
	50			71	W	18	D t l d f m h ph
	50	0 5		69	W	18	
	47			80	W	18	D t h d f h m l l
	9 51			54	W	20	
	50			48	W	20	
	48			30	W	30	
	47	0 5		25	W	1	
	45	4		18 5	W	30 & 0	
	45	0 5		9	W	30	B d t t p
	39			0 5	W	30	
	38	3	7		W	21	
	32	4	41		W	40	I p f w p l l t l m b f b t l o t w t
	30	1	51 5		W	24	
	29		55		W	24	B d t t l
	28		74		W	21	
	27	0 5	86		W	20	
	(	1	87		W	0	
D 8 G N	10 5	0 5	5		L	20±	O S N t
	5	1	66		L	35	O
	9 25	0 5	50 5		I		S l l
	34			28 5	E		M l t
	10 5	1		35 5	D	30±	C
	9 32			48	D		S m l l
	10 5	0 5		46	L	15±	O
	5			51	F	15±	C
	5	1		58	D	15±	O
	5	1 5		63	I	25±	O
	9 30	0 5		66	L		D b l m l l
	30	0 5		69	F		S m l l
	10 5	0 5		69	W	25±	C
	9 45	1		61 5	W		S m l l
	48	0 5		27	W		S m l l
	10 5	7		55 5	W	L	C
	5	0 5		6	W		O S m l l
		2	28		W		
	9 40	2	29		W	L w	S m l l
			17		W		l 80 l l h t d t L t + 37 W
	87	1	54		W		M d t d B l t t p
D 9 G N	9 2	1	82		D	18	
	0	3	67		I	30	
	8 49	3		28 5	I	24	
	45	5 5		44 5	J	43	
	38			63	I	72	
	35	1		68 5	L	30	
	3			72	I	48	
	41			87	W	1	A l d b l
	26			66	W	60	B d t l m d l l O r m 75 l g h t
							9 l l l
	28			68 5	W	20	B d t t l
	9 35	3		34 5	W	72	D b l T p b t 6 l g
	28	1 5		28	W	30	
	28			25	W	60	D t l l f m h m ph
	28	1		23	W	21	A l d b l
	24	0 5		6	W	1	T p f w b t 9 l t l w y
	21		1 5		W	90	I l g h t 90 n O
	20	1 5	8		W	21	I l g h t 90 n O
	18		31 t 40		W	120	A l g l d f w y f m l m b
	7	1	56		W	40	
D 10 G N	9 6	0 5	17 5		E	15	
	11	1	0		F	80	O
	10 30			10 5	E	90	B k t h m d d l
	9 57	2		15	I	20	S N t
	55	4		20	D	10	
	8 52	4 5		46	E	45	
	45	1 5		64	W	25	
	9 45	9		31 5	W	40	
		1		25	W	80	



D t and b	H M M T	B	L t t l		L b	H gh	R m k
			N tl	S tl			
1905							
M y 16	G N	9 20 8 54 52 9 0 19 19 17 15	4 1 1 1 1 15 2	38 61 745 61 165 20 35 69	H L W W W W W	30± 15 15 5± 10 15 & 20 15 4	C C B ght (1 d bl)
D 17	SS	8 5 48 45 11 30 31 33 6 4 13 9 10 8 8 24 9 0	5 2 3 05 0 5 45 3 4 10 05 3 05	(0 45 395 35 31 22 10 5 11 395 58 71 20 85 185 685	H H L L E E E I L L L W W W W	48 45 0 36 25± 30 36 0 30 40 30 30 0 30	S N t C t d C V y f t Sl d V f t E t d t L t + 13 D C B d t t p C i m 4 b d
D 18	G N	J 0 10 15 13 11 9 5 2 0 50 98 36 36 8 3 9 30 8 35 35 35	2 2 15 23 95 18 05 1 15 05 2 2 2 3 15 37 57 68 72	59 15 35 23 95 18 235 44 15 15 885 5 13 135 155 37 57 68 72	H H H H H E L F W W W W W W W W W W	50 20 25 20 30± 30± 20 30 1 20 35± 0± 20± 25 1 30 15	B d t t p 65 hgh C l d C B l t l l d l 1 p } C n O t d a t t p p t b l D Ab t t w hgl C Sl g l t l y t l l C C ( l 4 b l C C C
D 19	SS	10 5 53 53 50 50 48 4 14 4 10 40 94 82 2 24 17 15	15 45 6 1 35 15 15 1 15 1 15 1 1 1 1 11 45 3	67 11 48 23 6 31 37 115 45 70 86 82 16 32 245 165 155 65 715	L F L F E F I I I I I W W W W W W W W	20 60 70 20 20 30 L w 18 18 24 18 20 60 86 30 30 40 36 0	Sl d Sl i L g pt b R p d l y h n g g B 8 b d C
D 22	G N	8 41 87 80	65 1 05	26 165 05	D E E D	35± 20± 4±	S N t H ght 40 n O B d t t p 65 hgh C

D t d b	H M M T	B	L t t d		L m b	H g h t	i i
			N t h	S t h			
1905							
M y C N	8 30 40 50 4 40	1 1 2	10 78	88 68 395	E W W W	80± 0 1± 20± 30±	B d t t p O B d t t p O
D 23 S S	10 17 17  7 89 88 3 89	4 2 1 05 1 1 2 1	995 28 175  11 2 725	2 295 49	D D E L D F W W W	80 48 0± 20± 30± 70 10± 20 30±	O V y f t A l m i d t h d f m l b O
D 24 G N	8 50 17 45  9 37 8 42 29 37 85 84 80 80 9 37 5 2 8 51 5	1 25 2  7  1 2 1  05 1 05 05	79 35 7  6 0     30	25 87 6 83 78 7 675 525 85 8	L L D E D E D W W W W W W W	10 0 60± 3± 20 45± 2 0 10 15 15 25± 40 10 10	B d t t p I r g m t y O p m n t b l 170 h g h C B l t t p D b l C F t P t t y t g O l p t l m b t L t - 175 W S l g t y l g d t l l O
D 25 S S	8 5 44 44 38 30 2 25 5 2 9 55 53  35 3 30 1	19 1 1 2 15 05 0 05 1 1 8 25 2  9 68	58 295 0  185 32 37 08 16 67 20 80 0 485 215 17 10  9 68	   185 32 37 08 16 67 20 80 0 485 215 17 10  9 68	T I I L I F I L F W W W W W W W W W	24 120± 75 20 60 86 4 ± 20 0 20 10± 10± 10± 21 18 60 60	S l d M t O  D b l  O p 42 W t d f m L t - 57 W t A t l l d f m t t p t L t - 2 W B l t t p I g n C B d t t p
D 26 G N	8 50 42 41 40 9 15 15 12 9  0 8 53	9 1 85 1 85 6 15 2	215  315 40 55 08 74 52 47 14 9 4 95 66 69	315 40 55 08 74 52 47 14 9 4 95 66 69	D E T D V W W W W W W W W W	90 & 95 20 1 20 0 20 100 & 60 45 15 80 20 1 10± 80	130 l g l O  B d l t l B d t t l B l t p l l l S l n d
D 27 S S	9 22 18 18	2 15	67 51 475		D E E	45 30 80	V y f t d t h d f m l m b



D t d b	H M M T	B	L t t d		L b	H ght	R m k
			N th	S th			
1905							
M y 27	S S	9 11	4	38	E	36	O p m t d t L t + 31 D
		8	7	25 5	L	20	D pt N tl d 85 l g h n O
			3 5	19	D	10 ±	
		6	0 5	13	D	20	B g l t H l k
		50	1	10 5	D	30	O
		2		2	F	1 w	R g l t
		8 59	1	33 5	E	30	D bl
		51	0 5	10 5	E	24	D bl
		48		51	E	24	B l t t p
		35	2 5	64	W	30	
		9 38	1	41	W	50	B d t t l B 6 b d n O
		32	1	13 5	W	48	
		27	2	68	W	60	L g C
D 28	S S	10 31	0 5	68	D	90	O
		9 4	4	37 5	F	60	
			7	29 5	D	L w	
		50	1	19 5	D	24	S m t d by f g m t y t k 6 l g
							C
		45	2	48	F	24	D bl
		10 31		65 5	W	45	O F t
		22	0	41	W	40	B d t t l
		20	0 5	5	W	20	T p l w f b t 3 t W
		18	3	17 5	W	36	
		14		10 t 15	W	75	A l g l d w y f m t h l m b
		10	0 5	32 5	W	40	
		8		38 5	W	30	B d t t p
		5	1	64 5	W	36	
D 29	G N	10 38		76	F	25 ±	V y f t l g O
		28	0 5	70 5	D	35	C B l t t p
		28	1	66 5	D	25 ±	O
		35	1 5	30	E	15	
		34	1	10	E	12	
		31	0 5	8	I	12	
		30	0 5	43	E	20	
		30	1	45 5	D	30	
		28	6	58	L	95	O
		27	0 5	71	D	12	
		45	0 5	42	W	20 ±	F t
		38	1	35 5	W	50 ±	O p m 30 h g l d m n t d by
							l t g t k
		38	1	38	W	30	
D 30	S S	9 27	1	74	F	30	V y p d l y h g l
		14	4	19 5	F	60	D l t l g h t l y d p l d
			1 5	10	E	20	
		5	1	3	E	20	
		8 55		43	E	40	
		55	2	45	D	40	
		9 27	0	68	W	90	C
		52	1	64 5	W	20 ±	V y f t
		48	3	51 5	W	40 ±	V y f t 60 h g h O
		42	1	11 5	W	24	
		39	4	23	W	30	
		35	1 5	35	W	20 ±	
D 31	G N	8 45	1	72 5	E	30	S l g h t l y l g n O
		41		29	F	15	S l t l y t l l n C
		40	5	21 5	E	1	
		38	3 5	13	E	30	
		9 40		9	D	2 ±	O
		40		15	E	2 ±	O
		8 34		55 5	E	20	
		31	0 5	57 5	E	15	
		30	0 5	75 5	F	12	
		9 4		72	W	15	S l l
		40	2 5	53	W	L w	C
		2	1	50 5	W	30 ±	F t
		0	1	45	W	30	S l g h t l y t l l n C
		10 05	0 5	37 5	W	15	S l h t l y t l l n C

D t d b	H MMT	B	L t t l		L l	H l t	R m l
			N h	S th			
1905							
M y 1	GN	8 55	6	28	W	15	D bl
		9 40		3	W	5 ±	Sl d C
		8 51	2	40	W	30	Ab t 0 hgl C
J 1	SS	9 35	3	70		90	
			1			36	3 d C
		25		18	I	15 ±	O
		14	1	21	L	25	
		2		20	I	25 ±	O
				32	I	20	
		25	3	42	I	35	C
		58	05	68	W	5	O p n n t d t L t - 32 W
		25	05	41	W	10	
				30	W	20	
		4	9	13	W	30	El m t g t p 10 hgh C
O 2	GN	0 10	2	70	F	90	
		8	05	165	F	1	R l t t p C
		7	05	85	F	15	B t t t l C
			05	2	I	30 ±	( Sl t l l
		5	3	175	I	4	I l f C l t l b l t - 11 D
		1	3	37	L	60	El f O l t l b t L t - 33 D
							d 28 D
		0	1	635	F	20	
		8 59	05	67	F	20	
		59	05	715	F	1	
		5		815	W	30	B d t t l
		9 29	05	67	W	0	D bl C p m 3 b d 1100 l gl
		26	5	43	W	00 90	
						0	
		19	2	6	W	3	
D 3	SS	10 34	2	31	F	0	O
		28		175	I	30	W ly 05 b l t 10 l
		1	1		F	30	
		17	3	18	F	30	
		15	2	39	F	12	
		9	3	5	I	30	
		4	05	115	W	30 ±	
		40	4	11	W	21	
D 4	SS				V	0	
		11 41		685	F	0	S N l
		41		67	L	30	
		41		61	I		
		46	3	10	I	40	
		53	05		I	25	B d t t p
		5	1	195	F	10	
		20		51	W	20	I l
			1	15	W	0	
		22	1	32	W	20	D l l
		30		3	W	20	
		30	1	27	W	20	
D 5	KVS	8	1	19	W	10 ±	
		37	1	54	W	30	
		11 14	1	63	E	0	F t d t l t 5 l l
		0	3	155	L	30	C t l t l l l
		0		11	F	1	
		10 58	3		F	I w	30 hgh
		9 2	6	15	F	75	
		18		16	F	30 ±	C
		16		22	E	30 ±	O
		5	2	21	E	30	
		8	3	115	E	30	
		4	25	66	F	24	
		0		70	B	40	
		10 19		81	P	20	
		9 18	1	88	W	30	Sl d
		10 15		655	W	25 ±	
				56	W	10	

D t d b		H M M T	B	L t t d		L m b	H g h t	R m k
				N t h	S t h			
1905								
J 5	K V S	10 15 11 40 10 8 9 58 50	2   14	26 37	53 34 13 5	W W W W W	20 30 20 30 60 & 40	Sl d 55 hgh O  B s b d O
D 6	K V S	10 50 46 3 9 58 58 10 22 22 20 14 5 9 55 58 11 40 9 58 11 25 0	5 4 1 2 6  6 5 1  1 2 1	67 5 51 40 5        19 31 6	   12 17 20 5 23 26 5 42 68 5 76 3 0 5	E E E E E E E E W W W W W	90 80 & 35 L w 30 ± 20 ± 15 15 40 & 80 30 35 30 ± 30 30 90 20	B k l B ght C 

[illegible]

D t d b	H M M T	B	L t t l		L m l	H g h t	R m l
			N t h	t h			
1905	M						
Ju 16 G N	11 58 52 9 26 11 40 46 4	1 8 6 0 5	4 87 45 5 52 77	31	W W W W W	25 60 20± 10 15 15	N t
D 17 G N	8 50 48 40 26 9 0 8 58 58 55 52	8 2 0 5 3 5 1 5 1 1 5 1 5	57 47 28 23 5 40 5 23 18 22 28		F E E E W W W W W	1 25 25 25± 30± 15 15 15 12 12	O
D 21 S S	10 40 11 58 5 55 58	2	20 14	81 5 17 15	L W W W W	80± 40± 60± 25 60±	S N t
D 22 K V S	9 5 8 48 89 9 15 40 25 31 2	2 0 5 2 3 1 5 1 5	25 25 23 69 14 5 8 5 10		I E E W W W W W	120 20 20 45 L 25 30 30 0±	S N t
D 23 S S	11 20 51 51 51 47 44 10 58 11 59	0 8 1 5 8 1 1 5	23 5 1 7 5 12 24 5 39 61 66 42 5 12		D D P E D D L W W W W	20 25 2 25 40 25 0 4 30 25 30	B 2 b l C
D 24 K V S	9 35 27 10 16 9 5 7 0 8 56 10 16 8 52 48 10 12 5 9 55 55 48	0 5 1 1 5 2 2 5 1 0 5 1 2 2 1 1 4	76 61 54 5 40 80 21 5 8 5 25 14 5 93 5 65 1 5 11 28		D D E D D E E E E E W W W W	35 20 20± 35 45 20 20 40± 20 20 60 40± 120 55	B g h t n d l l k S m w h t t l l O } M t g t t p n O B d t t p O D t h d f m l m b S N t } M t g t t p
D 5 K V S	11 2 0 14 11 0 10 50 44	0 5 0 5 6 0 5 1 4 2 5	41 34 5 12 34 5 88 62 33 40 66		D E E E W W W W W	30 2 2 20 15 70 35 30 25	C H g h t 30 O } S N

D t d b	H M M T	B	L t t d		L m b	H g h t	R m k	
			N t h	S u t h				
1905								
Jun 28 K V S	9 48	3 5	57		E	70		
	42	0 5	38 5		E	40		
	22	1	1		E	?	H g h t t k y b g h t	
	15	1		80 5	E	30		
	5	1		38	I	20		
	10 20	1 5		75	E	20		
	18	?		24	W	30		
	10			10	W	45	D t h d f m l m b	
	0	2		3 5	W	36	D b l	
	D 29 S S	10 25	5	67 5		E	80	A h l l
		10		28		I	80	l l l
		5		9 5		E	70 ±	D t h l f m l m b
9 56		5	2		E	36		
54				11	E	25	B d t t l	
25		2		21	F	30		
23		3		30 5	E	86		
		1		61 5	E	10		
15		1 5		86	W	20		
11 2		1		65	W	40 ±		
9 28				60 5	W	30 ±	O	
10 51				43	W	75 ±	B d t t p	
47				81	W	25		
45		0 5		17	W	10		
44		2		2	W	20		
41		2	18		W	10		
35		3	37		W	30		
30		0 5	68		W	20		
30	1	78		W	10	D b l		
D 30 K V S			70		E		L w d f t H 30 l g l C S N t	
	10 25	1	24 5		E	40		
		2	8		E	?	60 l g h C	
	18	2	2		E	25		
	23			28	F	30 ±	O	
	55	4		66	W	?	65 h g h O	
	52			13	W	L w	B g l t 65 h g l O	
	5	6 5		5	W	L w		
	45		24		W	45	I p n l y m t l m b t t L t + 19 W O	
	30	0 5	69		W	20		

## NOTES

1905

J y 4 Lt - 27 W Bg b gtt t lk lightly l tng nthw d th bgt ft ttp  
 5 Lt 105 L E pt F d pl d bth wy b t 15 A Al g mb f m tll l w t  
 m m t f l g Th ky w d wth thm l l  
 6 L + 30 D Th p m p tty b d d p t df m th tth b b t n t d tth t p  
 by gl l lghtly dl  
 Tl wh l lmbw t m l t f l d  
 7 Lt - 75 D E pt F d pl d b t l t d N m l t l b ght j t f f w d g n th d  
 8 Th th tq l tw t m df p m th t fth lmbw b dm tly th ght l d  
 H ght d d pp t  
 Lt + 34 L S ll w b db kf 5 n th d fth p t  
 11 N t l - Lt - 0 W S lf gm t t ght l nt gl  
 N t - Lt + 48 W M nyf t j t f 5 th d - H ght g gf m l 2 t 30  
 12 Lt - 315 W Af t t m f w gf m t l t p nd lm t m t gth lmb t p nt b t 7 d t t th  
 w t d  
 13 W t l f bl f m gh ght  
 14 N t l - Lt + 49 E A l d bl th bgh b gh l h p d d d t h d f m th h m ph  
 N t 2 - + 215 D Tw p m m g t t p th b t m f fth m w b ght nd pt v  
 16 Lt + 255 W A y l g db d l d f t n w y f m th h m ph d j dt t by 3 4 w  
 t m  
 18 N t l - Lt 9 D D pt F d Mg l y t  
 N t 3 - I t - 9 W Tl th d fth p m n w y b ght d d t b d It w l p dly h g g  
 Th t l t p t d pp ar d ft t i t b d F p m p t w d pl d b t l A t d  
 t b t h l f d p t l t t l nd b t 0 At l t t tw t l p t Th th d f  
 th p m n w lly b ght Th fl l w b l th p m n p t m b tw n D  
 d F -  
 4J22 446 (C) 4924 107 (F) 4984 { 217 (B) 1952 461 (F) 5016 840 (T) 018 C29 (F) b (Mg)  
 277  
 b (Mg) b (F) b (F nd Mg) 5204 768 (F) 5206 215 (C T) 5 08 776 (F) 5197 743 (-)  
 5189 018 (C) 5227 048 (F C) 5 84 91 (-) 5269 723 (F) 5 70 438 (C) 76 { 169 (F P)  
 237 (-C P) 5316 790 (F)  
 5325 738 (-) 5328 236 (F) 5362 944 (F C) 5371 { 658 (O P) 5397 344 (F) 540 989 (F) 5425 464  
 734 (F)  
 (-) 5429 911 (F) 5434 740 (F) 5535 081 (F) D (N) D (N) Ab t tw ty b gl t l t l t  
 w b d th l t d f T D full f l t l th Ob v d t 10h 50m - 11h 30m Sky b d t  
 11h 40m  
 19 Lt - 19 W Th b ght p p m m t d by f t t k t d g b t l I 10 m ut  
 th wh l g pw pl d by f w b ght j t D D b b b ght t b  
 21 Lt 205 W Spl d t t f m th Ab ght t f t t h t p f h II d h g d t 10h 55m  
 23 Th lmbw m df m p 120 t 180 ly n f l d  
 24 Lt 58 W Lw t g l N th db ht d h g g p lly  
 26 Lt - 64 W Tw q lly t l p m n q t l t tth b b t w t l t l pp h l n ng q t l  
 d p l l t h th  
 28 Lt - 105 E D bl f l f w g th t p fth th l l f l w g b gl t l w b d th  
 l g -  
 4922 446 (C) 4924 107 (F) 5018 468 (N) l (Mg) b (Mg) b (F) b (Mg d F) 5197 743 (-) 5269 723  
 (F) 5276 { 169 (F P) 5316 790 (F) 5234 791 (-) D (N) D (N) Th p m n l l l ly b n  
 237 (-C P)  
 m t fth l 8h 45m - 9h 5m Th l y d g l w d pl l (15 A t l t d 2 A t d n F) t  
 tw y b ght l t l tth t l d f h p S d m h l m d m gn mh w  
 y d t t d  
 29 N t l - Lt + 15 W Af t t m f w f m t l t p l m t th lmb t Lt + 21 E  
 N t 2 - Lt - 14 E A mb f t l l t g p l l m t g t p t T p l g t d C lghtly d pl d b th  
 w y th m  
 N t 3 - Lt - 82 E D bl fth m d d l nt t w d th th d d t h d f m h m ph  
 31 Lt 71 W N p m tth p t b t l w b d l t fth l m ph f 3 th d  
 F b y 9 Lt + 16 W Ab d l t g b t t h gth lmb t ly p t  
 W th b d f p m b t  
 10 N t l - Lt + 195 W Ab d lm t d i h l f m lmb d wth t m f w g f m t t p  
 N t 2 - Lt + 44 W Af t p b h w y f m th m d d l fth m d m t th lmb t Lt  
 + 39 h  
 11 Lt - 14 W M t l l Th w t d f t w t n ly b ght p dly h g g f m d h w g d pl m t  
 b th w y t p nt m t t 2 A F 7065 406 ( ) 6878 235 (F) D (N) D (N) 5316 { 906  
 958  
 4924 107 (F) 501 340 (T) d 5288 802 (F) w b ght  
 1 Lt + 295 E D bl hyl g I p fill d up nd t p f w g t m n l m  
 Th wh l lmbw b dth gh l d  
 14 Lt + 18 W E pt O D d F d pl d t d m t F b t 1 A t 10h 11m

1905

F b y 18 Th lmbw m d lyb tw p 60 1180 t f b d w th  
 18 L t - 31 E Al w j y m d w t l t l l t k t b t t t h g t  
 19 L t + 18 W T p t d b t 7 d t l g h t f 2 l m  
 20 N t 1 - L t - 57 W A th t l t h t p d t h d f m t d f t h l m b  
 N t - L t + 30 W F w p y m d j d t l t h O l m p m t l t L t + 46 W  
 1 N t 1 - L t - 1 W F f t l l l l - t l f t h m d t l d f m t h h m j h  
 N t 2 L t - 2 W T l y l y m t t h l t p m B l t l d t p b d l m  
 22 L t + 48 D O l m p l l b d t b l t  
 24 L 17 W D l t T h h y d g l w d l l l t t h p l t (1A I) d t t w p l t l l t  
 (1A d 5A F) D d p l l b t l w y M g d l l y b g h t t l l l 48  
 5 N t 1 - L t - 23 D M t l l P y h b k p p T l w l l g l t l y d t b d  
 T h H l p m d p l d t d d f 32 A T h b g l t l n b d 706 5 (I I ?) 68784 (H ?)  
 5316790 (I) 5284281 (I) 576 37 (C ?) 5281791 ( ) 197743 (-)  
 N t 2 L t + 16 l + 19 W A l g t k t h t p f t h t w p m n p l l t t h l m b  
 27 N t 1 - L t - 16 D T h l l m l l m t d b y l d m f t l m t d t t h  
 b b b y b g h t  
 N t 2 L t 7 5 W F h p m l d w t m h l d j p d b f 101 52  
 N t 3 L t + 10 W F l t p f w l l l t l m b d m t t h l l f t h p n t L t + 11 W  
 28 N t 1 - L t - 7 d 7 W T l t p f t h t w l l t t l y t d l m w h l t h y b l y  
 t h h l l y l  
 N t - F d l l y d t h l f h m p h T l m t t h l m t I t - 26 W  
 N t 8 - 8 l b t w t l l f t h t l t L t + 51 W d + 58 W l l l d l l u m  
 M h 1 L t + 7 F T l l w t n l b d b y l t l n O D l t V j p d l y h g g F w  
 d l l 12 A t l t t g l p t + 8 l l l t l d p l m t f t l l w m l t j h 0 A t 8 h  
 45 I w d p l d l A t l t t t w l t l 5 A t l t t h p l B g l l l n l 22 398 (N)  
 1021107 (I) 016340 (I) 501862 (I) 5110574 (I) l b l l 5197718 ( ) 276 { 169 F 5316790 (I)  
 86 944 (I C) 425 101 (-) 5285081 (I)  
 2 N t 1 - L t + 9 E V y p d l y l l g l l g h t b t 90 l (910) d b m 60 h y d g t  
 9 h 10 m A t 8 l 10 h b g d l l y t h g t l O l t h p w d p l d t w l t  
 d f b t 40 A n d t w t d g h t l w t t l b l y f t l d l l d l f m p t  
 t l p t l t t h l m b  
 N t 2 - L t 7 E B l d l g l t 9 l (J l O m) T h l p n t l f m t h t p f t  
 t L t - 77 W  
 4 T h p n w l l g t f t h l l h t g l l k t 9 h 27 m O b t w n t m d t h O  
 l n t h d m l d l l p d t i t g w d  
 6 L t + 27 F D p l y b g h t A l m t t h w h l l m w d m d l m l  
 8 L t - 67 F V y f t A th t l t k b l t q t d t h d f m t T t l l g h t 90  
 10 F l b t m d m t l y t l g h l t t l d  
 11 L t + 505 I B l d l y h g g D t l l f n t l l m b n l y d g b t j d t t l m  
 13 L t - 26 W t l 10 l m t t l f t l t b t l t h 25 d l 20 l g l p t l y d p t d  
 b y g p 80 h g l t l h i p p t h d t w t f w l w t w l  
 10 l 15 m B t l t m h d d l p l  
 10 l O m T h b l k l l t w t h t p t d f m 90 t 90  
 10 h 25 m T h p m b l g p d l p p g l m l t g p l t k t 9 h 16 m h d t l p m  
 l y 65 h g h b t 10 b d t b  
 14 L t 20 F A t l y l g h t p t l m l g d p l t t l f 6 A O l b t 4 A D  
 F l d p l m t d p p d t 8 l 45 m  
 10 L t + 22 E D t h d f m t l h m p l O l m l m w j d t t b t 2 b d t b d 75  
 h g h  
 18 P w t l  
 21 O l y h l f t h l b m d t f l l  
 22 O l y p t f t h l m b m d t f b d w th  
 23 L t - 8 E S l t d f t h h n p l b y 80 F d l l d b t l A t l t  
 25 O b t w m l t h g h t h k l d  
 29 O b t w m d t h g h l d H g l t p p m t  
 31 T h w t h j h w t m n d t f l d  
 A p 1 1 W t h b d  
 5 O b t w t m d b t n p 180 n d 50 t f b d w th  
 8 L t + 8 E T w l t t h h m p h t h g h t l n t h g l l l b t y d t b d S d m m g m  
 n d n l y b g h t F d p l l b 15 A t l t l b t 05 A t d  
 16 L t - 81 W D t h l f m t h l m p h O l p m j d t t d t d t L t - 78 W  
 19 O b d m t l y t h g h l d g  
 24 L t + 35 E d - 4 E O t d b y h 70 h g h l m A th h 65 h g h t t f m t h l t t  
 p m d l m t m t t h l m b g t L t - 13 D



1905

Ap 1 27 N t 1 — L t + 22 E V y b ght N th nd fth p m h w D D b b b b 51187 b ght A  
f w th l b ght t b ly  
N t 2 — L t — 47 W T p m t th l b g t t — 51 W It t d m d t th th d l m  
29 L t 2 L T p f w t w d th th f b t 3 nhyd g t m tth m pl d t d th  
w d f 10 l m  
30 L t 885 E t 8h 48m th w b d d pl m ntt d d f 30 A l t th pl fth p m b t  
td pp d t 8h 4 m  
M y 1 N t 1 — A l d f w y f m th lmb — b t 90 f m th tp t f lmb t L t + 50 D nd l t 160 t th  
f th tp t L t + 58 E Oh g d h p pdly d h d lm td ip d pl t g i h t k t 10h 31m  
N t 2 — Erupt Tw d k h l w t L t + 24 E d + 28 D th b dy fth p m th ltt w  
th d k fti tw  
O l mp m 180 hgh d t t p m t lmb g f t t k t L t 4 D  
7 L t — 3 E It n t d t t p t th l m t L t + 4 E It l t l th t l 10 t w d th  
th t b  
8 V ryp w th f b t  
10 L t 15 D I t ly b ght t b w pdly h g g d pp d f w m t l t l ng nly f t j t  
O l w d pl d n th p m t d d f 74 A t 10 l 20m Th d pl m td pp l t 10h 28  
11 N t 1 — L t — 145 E — 17 E — 21 E — 235 E All th w pt C D l f d pl d l t w y t  
th b fth p m Th t L t — 145 E nd — 17 E w ly l ght Tl Ol tl m w  
d pl d 15 A t l t d 05 A t d d  
N t 2 — A t k b t 8 l g t th f m th tp fth p m t tl th l m ly d 70  
h ght Th tp fth p m e t d w th th t L t + 26 W nb tl lyd g d l m  
15 S p  
17 S gp d g th ltt p t fth b t  
22 S gp  
J 4 Th lmb f mp 108 t 180 w n t m n d w i g t tl k l d m g  
12 O l mp m 2 b d t b d l t thward m th hyd g  
14 V yp w th f b t  
16 L t + 4 W Th p m w pdly h g pp f p m t lmb g n t + 17 W l m O  
l w d pl dt d d f 10 A t th w t d f h tp fth p m ly  
21 Th wh l lmb w m d th gh d  
22 L t + 25 E R pdly h g g n f m d l ght Tl tp w b t 20 l g l um  
24 L t 1 W Chang g pdly H gl m l m w 120 t 10 l 0m  
25 O l mp m Th g ld t b m d hyd g t f b d w th  
30 B ght ky with p g l d

19th Ap 1 1906

O MICHEL SMITH

D e t Kod ka l and Madr s Obser at r es

# Kodakkanal Observatory,

## BULLETIN No VI

### WIDENED LINES IN SUNSPOT SPECTRA

No 584

LAT — 12

LONG 101

CLASS—IVc IVb IVa

Date—1905 July 5—7

W	l	g <sup>th</sup>	M W d	g	N Ob	ml t	f n
4802	783					1	
4864	919		8			2	
4909	652		7			1	
487	671		7			1	
5001	16		6			1	
5000	829		8			2	
5013	179		7			1	
5016	840		7			1	
028	052		8			1	
5045	582		7				
5066	174		8			2	
5087	289		6			1	
5136	270		8			1	
5147	652		8				
51	0	363	8			2	
160	554		8			1	
219	875		7			1	
5225	695		8			1	
5428	474		8			3	
5480	572		7			2	
5482	078		7			1	
5490	3	7	7			2	
5627	859		8			2	
5671	071		9			3	
5672	047		8			3	
5687	083		7			1	
5700	402		6			1	
5703	797		8			1	
5707	204					3	
5716	671		7			1	
57	7	873	9				
5781	437		8			2	
5737	288		9			3	
5743	645		8			3	
Ob			—KVS			dsS	

No 589

LAT — 13

LONG 57

CLASS—IVc IVb IIc IIa IIIa IIIb

Date—1905 July 8 14

W	l	tl	M W d	g	N Ob	mb t	f
4802	029		7			1	
4864	783		7			1	
4864	911		9			2	
1875	671		8			1	
4885	124		7			1	
5001	65		8			2	
009	829		8			2	
5013	79					1	
5016	840		7			1	
5023	052		8				
5086	174		J			1	
5087	230		8			1	
5147	652		9				
5219	87		8				
522	695		8				
121	474		8			2	
460	572		8				
56	7	859	7				
567	071		8				
5672	047		7				
5703	797		7			1	
5707	204		7			1	
727	873		6			1	
5781	437		6			1	
5737	288		9			2	
5743	645		8			2	
Ob			—S			9	

**No 590**

LAT — 14

LONG 50

CLASS—I IIc IIa IIIa IIIb

Date— 1900 July 8 14

W l gth	M W d mg	N mb Ob t f
486 029	7	1
4862 788	7	1
4864 919	9	2
4875 071	8	1
4885 124	7	1
5001 185	8	2
5009 829	8	2
5018 479	7	1
5016 340	7	1
5023 052	8	2
5066 174	9	1
5087 289	8	1
5147 652	9	2
5219 875	8	2
5225 695	8	2
5426 47	8	2
5 60 572	8	2
5627 859	7	2
671 071	8	2
567 04	7	2
5703 797	7	1
5707 204	7	1
5727 873	6	1
5731 437	6	1
5737 88	9	2
5743 645	5	2

Ob — S S

**No 594**

LAT + 13

LONG 345

CLASS—IVc IVc

Date—1905 July 14—17

W l gth	M W d mg	N mb Ob t f
4864 919	9	4
4875 671	7	1
49 0047	6	1
5001 165	8	3
5009 829	8	2
5013 479	7	2
5016 340	7	2

W l gth	M W d mg	N mb Ob t f
5023 052	8	3
5043 761	6	1
5045 58	7	4
5066 1 4	8	4
5134 6 7	8	1
5136 270	6	1
51 8 690	6	1
5143 901	7	1
5147 652	8	4
5150 863	8	2
5160 138	6	1
5168 074	6	1
5219 875	8	3
5225 695	8	2
5300 929	7	1
5426 474	9	4
5400 2	8	2
5482 078	7	1
5490 307	8	2
5490 905	7	1
5627 859	7	4
5671 071	8	4
56 2 047	8	4
687 068	6	1
5659 812	7	1
5703 797	7	3
70 204	7	3
5712 996	6	1
5727 873	8	2
81 437	8	2
5737 289	8	4
5743 645	8	3
866 675	7	1
5978 768	6	1
6039 353	8	1
6063 080	6	1
6064 853	5	1
6081 665	5	1
6085 470	6	1
6243 3 0	9	1
6258 927	6	
6261 316	6	1
6280 598	6	1
6306 024	8	1
6455 820	6	1
6471 885	7	1
6438 130	5	1
6499 68	5	1
6573 030	9	1

Ob — K V S d S S

**No 604**

LAT + 14

LONG 322

CLASS—IIIa IIc

Date—1905 July 24

W l gth	M W d g	N mb Ob t f
4864 919	9	1
4875 671	8	1
5009 829	9	1
5028 052	8	1
5060 174	8	1
5147 652	9	1
5219 8 5	8	1
5225 695	8	1
5426 474	0	1
627 859	7	1
5671 071	8	1
5672 047	8	1
5703 787	7	1
5707 204	7	1
5737 288	9	1

Ob —S 5

**No 612**

LAT + 15

LONG 79

CLASS—IVa IVb

Date—1905 August 5 7

W l gth	M W d g	N mb Ob t f
4862 029	8	1
4864 919	)	1
4875 6 1	7	1
4928 511	7	1
4965 107	8	1
5001 185	9	1
5009 829	8	2
5028 052	9	1
5045 582	7	1
5066 174	8	2
5087 239	6	1
5184 697	6	2
5186 2 0		2
5143 901	6	1
5147 65	8	2
150 868	8	2
5219 8 5	8	2
5 5 695	9	1
5426 474	9	2
5480 572	8	2

W l gth	M W d g	N mb Ob t f
5490 867	7	1
56 7 859	8	1
5071 071	8	2
5672 047	8	
5727 873	9	1
5781 437	8	1
787 288	9	2
5728 645	8	8

Ob —K V S d S S

**No 613**

LAT — 16

LONG 61

CLASS—IIb IVb V

Date—1905 August 4—9

W l gth	M W d g	N mb Ob t f
4862 783	6	1
4803 883	7	1
4804 919	7	5
487 671	8	2
4920 047	1	1
4928 11	7	1
4965 107	6	8
001 185	8	2
500 820	7	4
5010 840		1
028 0 2	8	2
1043 761	6	3
015 582	7	4
5053 170	6	1
1086 171	7	5
5087 239	5	2
5122 293	5	1
1122 908	6	1
134 697	8	2
13 270	7	2
138 690	7	1
5143 101	7	3
5147 652	8	
5150 868	7	5
5156 823	6	2
5160 554	7	1
5164 724	6	1
5219 875	8	4
5 25 695	7	4
5238 742	5	1
5426 474	9	5
5460 572	7	4
5477 901	5	1
5482 078	6	3
5490 867	7	4
5490 905	7	2

W l gth	M W d g	N mb Ob t n	f
5503 444	9	1	
5627 859	8	5	
5671 071	9	5	
5672 04	8	5	
5687 083	5	1	
5689 6J4	5	1	
5698 746	5	1	
5703 797	7	5	
5707 204	8	4	
5716 671	6	1	
5727 873	8	5	
5731 437	8	5	
5737 288	9	5	
5740 195	6	1	
743 045	0	5	
760 550	6	1	
57 4 250	5	1	
5866 676	6	2	
5867 785	6	1	

Ob -KVS dss

**No 620**

LAT + 12

LONG 348

CLASS—IVa IVb IVc IVe

Date—1905 August 8 11 12 15

W l th	M W d g	N mb Ob t n	f
4862 029	7	2	
4864 919	8	2	
487 6 1	7	8	
4885 264	7	1	
4965 107	7	8	
001 165	7	1	
5009 820	6	8	
5013 47	8	1	
5016 840	8	1	
5023 0	9	1	
504 11	6	8	
501 82	6	4	
5060 174	6	4	
508 39	6	2	
5140 386	7	1	
5143 301	4	1	
514 652	7	8	
5150 368		8	
5156 823	4	1	
5157 163	4	1	
5160 11	4	1	
5163 071	4	1	
5219 875	8	3	
522 695	8	1	
5300 9 9	9	1	

W l gth	M W l g	N mb Ob t n	f
5426 474	9	3	
5460 572	7	3	
5490 86		3	
5490 905	7	1	
5504 17	8	1	
5 8 928	5	1	
588 025	6	2	
627 859	7	2	
5671 071	8	3	
5672 047	8	3	
5703 797	8	1	
5707 204	8	1	
5727 873	8	3	
5731 437	7		
573 288	J	3	
5743 645	8	3	
86 675	7	1	

Ob -KVS dss

**No 623**

LAT + 15

LONG 324

CLASS—IVa IVb

Date—1905 August 11, 17

W l th	M W d g	N mb Ob t n	f
4862 029	8	1	
4861 919	6	2	
4875 671	8	2	
4885 264	7	1	
4965 107	6	1	
5001 16	7	1	
5009 829	7	2	
5013 479	8	1	
5016 840	8	1	
5023 052	9	1	
5043 761	7	1	
5045 582	6	2	
5066 174	7	2	
5140 386	7	1	
5147 652	9	1	
5150 388	8	1	
5219 875	8	2	
5225 695	8	1	
5238 742	8	1	
5239 197	6	1	
5300 929	J	1	
5426 474	9	2	
5460 572	8	2	
5490 387	8		
5490 905	6	2	
5504 11	8	1	
5537 928	6	1	

W l gth	M n W d m	Numb Ob t f
5538 025	7	2
5627 859	8	2
5671 071	8	2
5672 047	8	2
5708 79	8	1
5707 204	8	1
5727 873	7	2
5781 437	7	2
5737 288	8	2
5743 645	8	
5866 675	7	1
6039 953	6	1
6199 398	7	1
6243 820	9	1
6306 024	8	1
6330 316	7	1
Ob	-S b d G N	

**No 626 A**

LAT +

LONG 273

CLASS- I IIIb IVb IIa IIIa

Date—1905 August 20 21

W l gth	M W d g	N mb Ob t n f
4864 919	6	2
4965 107	6	1
5009 829	6	2
5016 340	5	1
5043 7 1	5	1
504 582	6	2
5066 174	6	2
5087 230	6	1
5134 687	5	1
5186 270	6	1
5143 901	6	2
5147 652	6	2
5150 363	6	2
5219 875	6	2
238 742	5	1
5426 471	7	2
460 57	6	2
5482 0 8	5	1
5490 367	6	2
5627 859	8	2
56 1 071	8	2
5672 047	8	2
5708 797	5	1
5707 204	6	1
5716 671	6	1
5727 873	9	1
5781 437	8	1
5737 288	9	1
5743 645	8	1
Ob	-K V S d G N	

**No 626 B**

LAT +

LONG 266

CLASS—I IIIb IVb IIa IIIa

Date—1905 August 21

W l gth	M W l g	N Ob	b t f
5009 829	6		1
5043 781	6		1
5046 582	7		1
5066 174	6		1
5087 39	6		1
5 43 901	7		1
147 652	6		1
5150 363	6		1
219 87	7		1
5426 471	8		1
5627 859	8		1
5671 071	9		1
672 047	8		1
5727 873	9		1
5731 437	9		1
5737 288	8		1
743 61	8		1
Ob	-K V S		

**No 633**

LAT + 16

LONG 115

CLASS—IVd IVa IVb I

Date—1905 August 27 28

W l gth	M W d b	N Ob	b t f
4864 919	6		1
4965 107			1
5009 8 9	7		
5013 781	6		2
5046 582			2
053 056	5		1
5066 174	6		1
5087 230	6		1
5143 901	6		2
5147 652	6		2
5150 363	6		2
5219 875	8		2
5426 474	8		2
5460 572	8		2
5490 367	7		1
553 928	5		1
5 38 025			1
5627 859	8		2

W l th	M W d g	N mb Ob t f
5671 071	8	2
5672 047	8	2
08 797	6	1
5727 878	8	2
5731 437	7	2
5737 288	8	2
5743 645	8	1
5866 875	6	1
6199 398	8	1

Ob —KVS IGN

**No 637**

LAT — 18

LONG 62

CLASS—IVa IVe IVb IIIb I

Date—1905 August 30 31 and Sept 3

W l gth	M W d g	N mb Ob t f
4864 919	6	2
4875 671	6	1
4913 803	5	1
4965 107	6	3
5009 829	6	3
5043 61	5	2
5045 582	6	3
5053 056	5	1
5066 174	6	2
5087 239	6	2
5143 901	8	1
5147 65	6	4
5150 363	6	2
5219 875	8	3
5238 742	7	2
5295 485	5	1
5426 474	8	3
5480 572	7	3
5490 867	7	3
5490 905	6	1
5627 859	8	3
5671 071	8	3
5672 047	7	3
5703 797	6	2
5 07 204	6	2
57 7 873	8	3
5731 437	8	3
5 37 288	8	3
5743 645	8	3
6 43 320	9	1
6306 024	8	1

Ob —KVS dGN

**No 660**

LAT + 21

LONG 18

CLASS—IIa IIb IVb I

Date—1905 Sept 28 30 and Oct 1 4 9

W l th	M W d g	N mb Ob t f
4862 029		1
4864 919	7	4
4875 671	6	2
4965 107	5	1
5001 165	8	1
5009 829	7	4
5016 340	5	1
5043 761	7	1
5045 582	7	5
5066 174	8	4
5087 239	7	3
5134 697	6	2
136 270		1
5138 690		1
5143 901	7	2
5147 652	8	
5150 363	8	4
5219 87	7	4
5225 695	7	3
5426 474	9	5
5460 572	7	3
5477 901	6	1
5482 078	5	1
5490 867	7	3
5490 905	5	1
5627 859	7	3
5671 071	8	5
5672 047	8	5
5703 797	6	2
5707 204	7	2
57 7 873	9	2
5731 437	8	2
5 37 288	9	5
5743 645	8	4
5866 875	5	1
5807 785	5	1

Ob —KVS dSS

**No 662**

LAT + 11

LONG 78

CLASS—I IIIb IVe IIa

Date—1905 October 2

W l gth	M W d ng	N mb Ob t f
5009 829	5	1
5045 582	6	1
5066 174	5	1
5087 239	5	1
5134 697	6	1
5136 0	6	7
5143 901	8	1

W l gth	M W d n g	N mb Ob v t n
5147 052	7	1
5150 868	7	1
5219 875	7	1
5420 471	9	1
5627 859	8	1
56 1 071	9	1
5672 047	8	1
5708 79	7	1
707 201	7	1
727 873	9	1
781 137	9	1
5737 288	8	1
5743 645	9	1

Ob —KVS

**No 665**

LAT + 7

LONG 44

CLASS—I IVd IIIa

Date—1905 October 2—4

W l gth	M W d g	N mb Ob t n
4864 919	9	
4905 10	5	1
5009 829	5	1
013 479	7	1
016 340	6	2
5043 761	5	2
5015 582	6	3
50 8 058	5	1
5068 174	6	2
087 239	5	1
5134 007	7	2
5136 270	7	2
5138 690		1
5148 901	8	2
5147 052	8	3
51 0 868	7	3
5156 823	5	1
5219 875	7	2
5426 474	8	3
480 572	6	2
5482 078	6	1
5190 36	7	1
5627 859	9	1
5671 071	8	3
5672 047	8	3
5689 694	5	1
5708 797	6	4
5707 204	7	2
5727 873	9	2
5731 437	9	2
5737 288	8	3
5743 645	9	2

Ob —KVS dss

**No 673**

LAT + 12

LONG 237

CLASS—IIa IVb IVa

Date—1905 October 16 18

W l gth	M W l g	N mb Ob t n
1863 833	7	1
4861 913	9	2
4875 671	7	1
4885 264	7	1
5001 165	8	2
009 829	7	1
5013 179	7	1
5016 340	7	1
5023 052	8	2
5045 582	7	1
5060 174	10	2
5087 239	7	1
5117 652	8	2
51 0 868	8	2
5219 875	7	1
2 69	7	1
5300 120	9	1
5394 913	8	1
5120 10	8	1
5426 474	9	2
5480 572	8	2
5627 859	7	1
5671 071	8	2
5672 047	8	2
5703 797	7	1
5707 204	7	1
5737 288	9	2
5743 645	J	1

Ob —SS

**No 674 A (main spot)**

LAT + 12

LONG 165

CLASS—V IVe IVc

Date—1905 October 18—24

W l gth	M W d g	N mb Ob rv t
4862 029	5	1
4862 83	8	2
4864 919	8	5
4875 671	7	5
4865 107	6	3
5001 165	8	2
5009 829	7	5
5013 179	7	4
5016 340	7	4



W l gth	M d g	Numb Ob	t n f
5023 05	9	4	
5043 761	6	2	
504 82	7	5	
086 174	9	6	
5087 239	6	1	
5134 69	7	2	
5136 0	7	3	
5138 690	6	1	
5140 53	6	1	
5143 901	7	3	
5147 652	8	6	
5149 018	5	1	
5150 863	8	6	
5150 525	7	1	
5156 823	6	1	
5219 875	7	6	
5225 695	7	2	
5295 955	6	1	
5300 578	8	3	
5300 929	8	2	
54 6 474	10	6	
5460 572	8	6	
5477 901	6	1	
5482 078	6	2	
5490 867	8	6	
5490 905	6	2	
5537 928	7	1	
5538 025	7	1	
5627 859	8	5	
5671 071	9	5	
5672 047	8	5	
5703 797	8	4	
5 07 04	8	4	
5716 671	6	1	
57 7 873	8	4	
5781 437	8	4	
5 3 88	9	5	
5 43 145	9	5	
5886 6 5	6	8	
5887 85	5	1	
Ob	-K V S	d S S	

**No 674 B***(North spot of the Group)*

LAT +16

LONG 164

CLASS—V IV<sub>e</sub> IV<sub>c</sub>

Date—1905 October 24

W l th	M n g	N mb t f
5004 8 9	6	1
5043 761	7	1
5045 68	6	1
5066 174		1
5134 697	5	1

W l th	M d n g	N b t f
5136 270	6	1
5143 901	6	1
5147 65	6	1
5150 863	7	1
5 10 875	7	1
5426 474	9	1
5627 859	8	1
671 071	9	1
672 047	8	1
6727 873	9	1
5731 437	8	1
5737 288	9	1
5743 645	8	1
5866 675	6	1
5887 785	6	1

Ob —K V S

**No 676**

LAT + 6

LONG 59

CLASS—IV<sub>e</sub> IV<sub>a</sub> IV<sub>b</sub>

Date—1905 October 22—November 1

W l gth	M d g	N mb t f
488 029	5	2
1862 83	7	1
4864 919	8	9
4875 871	7	5
4882 336	7	1
4885 264	7	1
4915 414	8	1
4920 017	6	1
4928 11	7	2
4965 107	6	7
4976 08	6	1
5001 16	8	4
5009 829	7	11
5019 479	7	4
5016 340	6	6
023 052	9	
5043 761	6	6
5045 1 4	5	1
5045 582	7	8
5053 056	5	3
5086 078	6	2
5096 174	8	9
5087 239	6	6
5180 543	8	1
5184 697	7	6
5188 270	8	8
5188 690	6	7
5140 094	7	1
5140 553	6	3
5140 992	7	1

W l gth	M W d g	N b t f
5143 901	7	
5147 652	8	11
5150 363	7	11
156 823	5	
5160 4	6	1
219 8 5	8	11
22 69	7	6
5238 42	6	3
239 137	6	3
5260 61	7	1
300 578	8	8
5300 929	7	3
5388 17	8	1
54 0 10	8	1
5426 474	9	11
441 49	6	1
54 0 572	7	10
5477 901	6	2
5482 078	6	
5490 367	7	7
5490 905	8	5
5493 709		2
5537 928	8	1
5627 850	8	10
671 071	9	11
5672 017	8	11
5708 797	7	8
5707 204	7	10
5716 671	6	3
5727 873	8	8
5731 437	8	8
5737 288	9	11
5743 64	8	11
866 675	6	7
5867 785	6	2
5978 768	6	2
6030 953	5	
Ob	-K V S	d S S

**No 679 A**

LAT + 12

LONG 330

CLASS—I IIIb IIc IIa IVb

Date—1905 November 3—9

W l gth	M W d g	N mb t f
4862 0 9	6	1
4864 919	8	5
4875 671	6	2
4965 107	6	2
5009 829	7	5
5013 479	6	1
5016 340	9	1
5043 761	7	1
5045 582	7	3

W l th	M W d	N mb t f
5066 174	8	5
5087 239	6	1
5134 697	7	1
5136 270	8	3
5138 690	6	1
5143 901	7	1
5147 6 2	8	5
5150 363	7	4
5 19 875	8	2
52 5 695	6	1
5426 474	9	5
5460 572	8	2
5482 078	6	1
5490 36	6	2
56 7 859	8	4
5671 071	8	5
5672 04	8	5
5708 797	6	2
5707 04	7	1
5716 671	6	1
5727 873	9	1
5731 437	8	1
5737 288	9	5
5743 645	8	5
Ob	-K V S	d S S

**No 690**

LAT + 7

LONG 204

CLASS—IVb IIIa IIa

Date—1905 November 11 16 17

W l gth	M W d g	N mb t f
4864 919	7	2
4965 107	5	1
5009 829	6	3
5016 340	6	
5023 052	7	1
5043 761	7	1
5045 582	6	2
5066 174	7	3
5087 239	5	1
5134 697	6	
5 36 270		2
5138 690	5	1
5143 901	5	3
5147 652	7	3
5150 363	7	3
5156 823	6	1
5 19 875	7	3
5225 695	8	1
54 6 474	9	3
5460 572	7	1
5627 859	8	3
5671 071	9	8

W l th	M W l g	N mb Ob t f
5672 047	8	3
5703 797	9	1
5716 671	6	1
5727 873	9	2
5731 437	8	2
5737 288	9	3
5743 645	8	3
5866 675	8	1
5867 785	6	1

Ob -K V S d s s

**No 696**

LAT - 18

LONG 158

CLASS-IVc I IVa

Date-1905 November 18

W l gth	M W d g	N mb Ob t f
5219 875	8	1
5428 474	9	1
5460 572	7	1
5627 859	9	1
5671 071	9	1
5672 047	8	1
5703 797	6	1
5707 204	6	1
5727 873	9	1
5731 437	9	1
5737 288	9	1
5743 645	8	1

Ob -K V S

**No 702**

LAT + 5

LONG 60

CLASS-IVb V

Date-1905 November 29

W l th	M W l g	N mb Ob t f
4863 883	9	1
4864 919	8	1
48 5 671	8	1
5001 185	7	1
5009 8 9	7	1
5023 052	8	1
5045 582	7	1
5066 174	9	1
5147 652	9	1
5219 875	8	1
54 6 474	7	1
56 7 359	7	1
5671 071	8	1
5672 047	8	1
5703 797	8	1
5707 204	8	1
5737 288	8	1

Ob -S S

**No 708 A**

LAT - 16

LONG 347

CLASS-IIIa

Date-1 05 November 28 30 and December 1

W l gth	M an W l g	N mb Ob t f
4862 029	6	1
4862 783	6	1
4863 883	7	1
4864 919	8	2
4863 451	6	1
4875 671	6	1
4965 107	6	2
4975 580	5	1
5001 185	6	1
5009 829	6	3
5013 479	7	2
5016 220	6	1
5016 340	7	1
5023 052	9	1
5043 761	7	1
5045 582	7	3
5066 174	8	2
5134 697	6	1
5136 270	8	2
5138 690	8	2
5140 553	6	1
5143 901	8	2
5147 65	7	3
5150 368	7	3
5156 823	6	1
5219 875	7	9
5 25 695	8	1
5238 712	5	1
5300 921	6	1
5428 474	9	3
5460 57	8	3
5490 367	7	2
5490 905	6	1
5527 859	8	3
5671 071	9	3
5672 047	8	3
5 03 797	8	1
5707 204	8	2
572 873	8	3
5731 437	8	3
5737 288	9	3
5743 645	8	3
5866 6 5	7	1

Ob -K V S nd s s

**No 708 B***(Middle one)*

LAT — 15

LONG 335

CLASS—IIIa

Date—1905 December 4

W l gth	M W d g	N mb Ob t ns	f
4862 029	5	1	
4864 919	5	1	
4965 107	6	1	
5009 829	7	1	
5016 840		1	
5043 761	6	1	
5045 582	7	1	
5066 174	6	1	
5087 239	6	1	
5134 849	6	1	
5136 270	7	1	
143 901	8	1	
5147 652	7	1	
5150 368	7	1	
5156 8 8	5	1	
5213 875	8	1	
5426 474	9	1	
627 859	9	1	
5671 071	9	1	
5672 047	8	1	
5703 797	7	1	
5707 204	6	1	
5 16 671	6	1	
57 7 878	9	1	
5731 437	8	1	
7 7 288	8	1	
5743 64	8	1	
5866 675	5	1	
Ob v —KVS			

**No 708 C***(Easternmost big spot)*

LAT — 13

LONG 322

CLASS—IIIa

Date—1905 December 5

W l gth	M W d g	N mb Ob t ns	f
4864 919	8	1	
5001 165	7	1	
5009 829	7	1	
5013 479	7	1	
5016 840	8	1	
5023 052	8	1	

W l gth	M W d	N mb Ob t ns	f
5066 174	)	1	
5147 652	8	1	
150 868	8	1	
219 875	8	1	
695	6	1	
5426 474	8	1	
627 859	7	1	
5671 071	8	1	
5672 047	8	1	
5703 797	7	1	
5707 204	7	1	
737 98	8	1	
Ob —SS			

**No 714 B**

LAT — 25

LONG 214

CLASS—IIc IIb IVc IVa IVb IIIb

Date—190 December 7 8

W l gth	M W d g	N mb Ob t ns	f
4868 838	8	1	
4864 919	7	1	
4875 671	7	1	
4965 107	(	1	
5001 165	7	1	
5001 829	7	2	
5016 310	9	1	
5023 052	7	1	
5045 582		1	
5066 174	)	1	
134 697	7	1	
5136 70	6	1	
5138 690	6	1	
143 901	6	1	
514 652	8	2	
5149 018		1	
5150 368	8	2	
5 19 875	7	2	
5225 696	3	1	
5426 474	9	2	
5480 572	8	1	
5627 859	8		
5671 071	9	2	
56 2 047	8	2	
5703 797	7	1	
5707 204	7	1	
5727 878	9	1	
5731 437	9	1	
5737 288	8	2	
5743 645	8	2	
5866 675	7	1	
Ob —KVS dSS			

**No 715**

LAT — 9

LONG 170

CLASS—IVa IVe IVb I

Date—1905 December 10 11

W l th	M n W d n g	N mb Ob t f
4864 019	9	1
48 5 671	7	1
4885 264	7	1
5001 165	7	1
5009 829	7	1
5013 479	6	1
5016 340	8	1
5023 052	8	1
5045 582	6	1
5066 174	9	1
5147 652	9	1
5150 368	8	1
5219 875	7	2
5225 69	9	1
5426 474	8	2
5027 859	8	2
5671 071	9	1
5672 047	8	1
5708 797	8	1
5707 204	8	1
5727 873	8	1
5731 437	9	1
5737 288	8	2
5743 645	8	2

Ob —KVS ndSS

**No 719 A**

LAT + 1

LONG 100

CLASS IIa

Date—1905 December 14—28

W l gth	M n W l g	N mb Ob t f
4862 0 9	6	1
486 783	7	1
4863 833	7	1
4864 919	9	4
4875 671	7	8
4885 264	7	2
4886 85	7	1
498 107	6	
5001 165	8	3
5009 829	7	7
5013 479	7	4
5016 340	7	6
5023 052	9	4
5043 761	7	8
5045 582	7	8

W l th	M W d	N mb Ob t f
5006 078	6	1
5086 174	8	9
5087 39		2
5134 697		
5136 70	8	6
5138 690	7	3
5140 5 3	6	3
5148 901	7	4
5147 652	8	8
5149 013	6	2
5150 863	8	9
5156 828	6	4
5180 119	6	1
5160 554	6	3
5164 007	6	1
5219 875	7	9
52 695	8	6
5238 742	8	6
5239 137	0	1
5282 570	9	1
5300 929	7	1
5426 474	9	9
5460 572	8	9
5477 901	7	1
5482 078	7	2
5490 36	6	4
5490 90	6	1
5493 709	6	1
5627 859	8	8
5671 071	9	9
5672 047	8	9
5708 797	7	8
5707 204	7	6
5716 671	7	4
5727 873	8	9
5731 437	8	9
5737 288	9	9
5740 10	6	1
5743 64	8	9
5866 175	7	3
867 78	5	1
6039 9 3	5	1

Ob —KVS dSS

**No 724 (a) A**

LAT + 16

LONG 53

CLASS—IIc IIb

Date—1905 December 24 25

W l gth	M n W d g	N mb Ob t f
4862 783	7	1
4864 919	7	1
4875 671	7	1
4885 264	6	1
4915 107	6	2

W	l	gth	M	N	mb	f
			W d	Ob	t	
5001 165			7		1	
5009 829			8		1	
5016 340			6		2	
5048 761			7		1	
5015 582			8		1	
5066 174			8		2	
5188 690			7		1	
51 3 901			7		1	
5147 652			8		2	
5149 013			6		1	
5150 363			8		1	
5156 828			6		1	
5164 007			7		1	
5219 975			8		2	
5225 695			7		2	
51 6 174			8			
5460 572			7		1	
5482 078			7		1	
5627 8 9			8		2	
5671 071			9			
5672 017			8			
5707 201			8			
57 7 873			8		2	
5731 137			8		2	
5737 288			9		2	
5743 645			8		2	
866 675			7		1	

Ob —K V S

**No 724 (α) B**

LAT + 18

LONG 47

CLASS—IIc IIb

Date—1905 December 25 26

W	l	gth	M	N	mb	f
			W d	Ob	t	
1861 919			7		1	
1965 107			7		1	
5009 829			8		2	
5013 761			7		1	
5015 582			8		2	
5066 174			7		1	
141 897			7		2	
186 2 0			7		1	
143 901			7		2	
514 8 2			6		2	
5150 863			7		2	
5213 875			8		1	
5426 474			8		2	
562 869			8		2	
671 071			9		2	
672 047			8		2	
5708 797			7		1	
72 873			8		2	
5781 487			8		2	
5737 288			8			
5743 645			8		2	

Ob —K V S

**No 730A**

LAT — 9

LONG 283

CLASS—IIa IIc IIIa IVb IVa

Date—1905 Dec 27 to 1906 Jan 4

W	l	gth	M	N	mb	f
			W d	Ob	t	
4862 029			8		1	
4862 783			7		1	
1868 883			7		1	
4864 919			9		8	
4869 652			7		1	
875 671			7		4	
4885 261			7		2	
1915 414			8		3	
1928 511			7		1	
486 107			6		1	
001 165			7		5	
5009 829			7		5	
018 479			8		1	
5016 340			7		1	
50 3 052			8		7	
5048 761			6		2	
504 58			8		7	
066 174			9		8	
5180 548			7		1	
5134 697			7		4	
5186 270			8		7	
188 690			7		1	
113 301			7		1	
5117 652			9		8	
5150 868			8		8	
5160 413					1	
5219 875			7		6	
5 25 695			8		7	
5800 9 9			7		2	
5126 171			10		8	
5460 72			8		5	
5430 867			8			
5180 905			7		5	
5627 859			7		0	
5671 071			9		8	
5672 047			9		8	
5708 797			8		3	
5707 204			8		3	
5727 873			8		6	
5781 487			8		6	
737 288			9		8	
5743 645			9		8	
5866 675			7		2	

Ob —K V S d s s

## NOTES

1905

July

- 1 574 80 581 O d tl pt (SS)  
 2 574 O t gly d l t d k O lightly l pl dt d wd pt l b d D d k  
 b tw pt d l mb (SS)  
 3 584 l 85 C l tl pt (KVS)  
 4 586 C l g l t l y d pl dt d nd lightly b t l t pt (SS)  
 6 590 O l h t l y d pl lt d l lightly d m pl (SS)  
 7 589 O l h t l y l 90 O t ngly d l lightly d pl dt d l t (KVS)  
 8 C l g l t l y d l w y b t 589 d 590 O m t f th l b tw th pt O w l g l t l y l pl d  
 t l (SS)  
 12 594 C d d d k O l g l t l y d pl lt d l g h l f m l l p t t f l g l t O d  
 tl t l b f th l g p t 589 l 590 O l g l t l y d nd d l O h l t l y d l l d b t l w y t  
 t f g p (SS)  
 18 594 O l ngly d d l l t l y d l l d l pl th b l t l t m l l m l  
 (KVS)  
 14 594 O l g l t l y l tl b g p t d th t f th g p l g l t l y w d l d p d l h l l b t  
 th tw pl 89 l 90 O l g l t l y d t l pl d k d b g h t O d pl d l l t l y t d  
 t f g p (SS)  
 16 594 D d k t t f m p t O d l th p t d t t f t l b g h t b l g b t n t th b l g  
 589 d 590 D l l tw pl th p t O p p l l f d l th g p l l p p l t l l  
 th m d d l f t l g l 6420 169 ff l t l t m f t l l t 6122 43 l pl l l f d  
 w g d l l D D) n th p t p t m (GN)  
 20 604 O l g l t l y d t m b f g l (KVS)  
 21 601 O d l l l g l t l y t l tw t f g p d l g l t l y l t l l t t l g l 604 O t gly  
 d th m l l l t 594 O d th l g m b d t l g l t C b l l g l t l y t l l t  
 p t t d 597 O t l y d t p t t t f l t d d pl l t l t t l n t t th tl  
 w t D pl m t l w 15 A t s l 43 m b t t l d pl th d l l p d by 81 50 m (SS)  
 24 604 O d t t f g p (SS)  
 81 612 O l g l t l y d pl dt d th l t C d t l t tl pt d l b tw pt d l l (SS)  
 Aug t 3 612 O l m d d l f th p t l l h t l y d pl d t l f p t (KVS)  
 4 612 O l h t l y d b t n th tw m b (KVS)  
 5 612 l h t l y l g f O m d l l f p t (KVS)  
 6 614 O l g l t l y d pl dt l w t f p t (SS)  
 7 618 O l g l t l y d pl d b t l w y b tw th t p t f th g r l (SS)  
 8 618 O l g l t l y l t d w t d f th l t 620 O t gly d l t l d f th p t  
 (KVS)  
 9 620 O d g l 620 O l g l t l y d d d d pl l t d tl l t 618 O l g l t l y d l l b t l  
 w y l d t l p t th p t (SS)  
 11 618 O d th p t d b t w n t l p t d l b D k O d pl l t l t f w t l g f p t t  
 l t n d w y b t t d th l m b m t g d l l y g t 2 A l m b 620 O l g l t l y d  
 th l m b f t l p t l d pl d l g l t l y t d t l w t f t 620 l 623 b d t g t l d  
 m p d f w d d l (SS)  
 20 628 d l O t h k d t l l nd lightly l l l dt l p t O f t l y l tl l l N  
 l k D (GN)  
 21 628 A l g l t l f O w t l f l t l l g l t pl m t b th w y b t m d l l f l t 628 B O  
 l g l t l y d b t l d f p t (KVS)  
 25 629 B ( t p t) O t gly d d l k O l g l t l y d l l dt d (KVS)  
 27 638 O l n t f b (KVS)  
 31 637 b l l l f O w t l f m b (KVS)  
 S p t m b 28 660 O d th t n p t 657 O l h t l y l pl dt d b tw l t d l m b (SS)  
 30 660 O l l t l y l n b th p t f g p (KVS)  
 O t b 2 660 B O b g l t l y d 660 A O l g l t l y d S l g h t l f O tl m l l p t t tl w t f 662  
 (KVS)  
 3 660 O l g l t l y d pl lt d wd b tw n th p t 665 O d d b g l t nd l k O l g l t l y  
 l pl l t l t t t f w t p t (SS)  
 9 672 671 O l g l t l y d l l dt d (SS)  
 11 670 O d l b n t l g l t l y t d d d k n th b g p t (SS)  
 19 670 O d b th t nd w t d f th p t l t d y t g B th b g h t d d k O  
 d pl dt l t b t p t d l m b D pl m t l b t 08 A D k O d pl dt d t m pl  
 b t 05 A D l g l t l y d k b tw n p t d l m b (SS)  
 16 678 O l g l t l y d t d f g p d d pl d l g l t l y b th w y t t f b g p t 674 O  
 d t gly l f th m b (SS)  
 17 674 C b l l t l y d t d f th m b D k O b k nd d pl d l g l t l y t l t n l  
 pl O d t m b (KVS)  
 18 678 O q t 674 C t gly d t l pl n th g p S t g t n m l l p t t n th f g p  
 D d k t th m pl (S)

1905

O t b 20 64 O y t ly d w t d f g p n p t th t pl D d k t th th w t f th  
 gr p O l f d pl d t l t D pl m t f A n f g d lly b m r l d t ft  
 81 20 Sl ght h pl m t t d t th th pl b tw n p t ( )  
 21 674 O l htly d pl d t l pl t l f f th g p N th t f th p F d pl d  
 15 A t l t N t l m p t t l lghtly d (SS)  
 22 674 O l htly d l pl O d pl d 08 A b th w y f th p t d t th t d w t  
 f th O w y l ghtly d 676 O y b ghtly d w t f l t B ght O d pl d 05 A  
 b t l y N d l D (KVS)  
 23 674 O d th l g b d t ly w d g th t f th g l D d k t th l t t  
 pl W t d f g p y l t b d 676 O d b tw th tw mb e d F l pl d 15 A t  
 l t l w t f l t 6348 622 p t lly ff l b th p t (SS)  
 24 676 O d j t t d th mb e d l l t l t l p mb 674 O d mb f l g p t  
 (KVS)  
 25 674 O l l l t 67 O f tly d t w t f g p (SS)  
 26 674 O t gly d d d l C lghtly d l d t d w t p D d k t p b tw th p t  
 b t t t l p t w l C v l 676 q t (KVS)  
 30 O S l y d t l b d d l n t d f l mb 5011 119 5325 738 5326 981 d 6342 890  
 p tly ff d 67 J O l htly d t p t (SS)  
 N y mb 1 676 O lghtly l l l d t d t w t f p t D y d k p t (SS)  
 C 679 O lghtly d l l l l d t t f l t (KVS)  
 9 683 O t ly d t f l l (SS)  
 10 690 O b ghtly d n d l l C l l tly d l l d (KVS)  
 11 690 O l l tly l t l t 694 O lghtly d (KVS)  
 16 696 O t nily l t w t f l t 690 l t (KVS)  
 28 708 O lghtly d l l l (KVS)  
 30 708 O lghtly l l l l (KVS)  
 D mb 1 708 O t lly l t l mb f th l b g l t f m w t (SS)  
 4 713 O lghtly l (KVS)  
 14 710 O lghtly l t w pl b tw n t l l g l m l l p t l D d k m 714 O d  
 l d l O lghtly d l l d t d l pl (KVS)  
 15 714 O lghtly d d d l l d b th w y p t (SS)  
 16 714 O lghtly l l l l b tw n p t (KVS)  
 18 710 O lghtly d t l w t f m l l l t (SS)  
 22 726 C d m l l l f g l l d l O l pl d t d (F d pl d l A) (I VS)  
 23 22 O d l l l p t 726 O d l lghtly b t b l w th l g p t (KVS)  
 24 724 C lghtly d t l f p t 726 d k O d pl d b th w y m t F l A (KVS)  
 25 722 O lghtly l D d l 724 O lghtly d l b tw t h f p t 727 O b ghtly  
 d t l t (KVS)  
 28 724 A 727 730 O d O lghtly d pl d t d 727 t 9 l 20 m d pl l b th w y t th m p n t  
 t 10 l 20 m (SS)  
 29 727 730 O l (SS)  
 30 730 O l lghtly t l l d g p t d m l l d t b t th tw p t D l O lghtly d pl d b th  
 w y t l l t l t (SS)

16th June 1906

O MICHEL SMITH

Dire t r K dark al nd M d Ob at r





# Kodaikanal Observatory.

## BULLETIN No VII

LIST OF PROMINENCES OBSERVED BETWEEN 1905 JULY 1  
AND 1905 DECEMBER 31 WITH AN ABSTRACT FOR THE YEAR 1905

D t n d b	H I S	B	L t t l		L m b	H g l t	R k
			N t h	s t h			
1905	m						
J ly 1	SS		81		D	20	
	9 26	25	70 b		E	25	V y f t
	5	05	7		E	30	O
	19	1	05		E	80	
		2		135	L	10	
		1		165	F	10	
	12	1		25	E		
	12	05		29	E	2	75 l g l O
	3			35	D	25	
	10 3	15		20	W	40	
	) 55	6		17	W	20	
	40	3	3		W	30	O l g l t l l l l t l t b
	43	2	25		W	20	
	38	4	51		W	75	
	35	1	6		W	50	l p b d
	20		71		W	25	
D 2	SS		805		D	2	
	8 49		75		E	25	
	45	1		11	D	25	
	41	2		14	E	45	O l g g } O d l l d l g l t l b t h w y
	89						f m l D; b b2 b3 b g l t
	35	85		25	D	4	
	30	2		415	F	25	
	9 42	05		6	W	1	F t
	40			30	W	30	
		5		225	W	1	A l w l
	20		15		W	25	S N t
	16	55	145		W	25	N t h d O l l t l y d l l d t l
	12	1	255		W	50	
	10	05	30		W	30	
	6	45	48		W	60	
	0	45	66		W	60	
D o 3	K V S		73		E	20	
	9 23	1	67		E	50	Ar h l k S h p d f t O
	20	4			E	35	
	8 40	1	33		E	15	
	10 12	4	22		E		

N - F m 1905 J ly 1 l l b t w d d n I d St d d T m w h h 5 h f t f G w h

D t d b	H S T	B	L t t u d		L m b	H g h t	R m k
			N t h	S t h			
1905							
July 8	K V S	8 40 9 5 0 8 58 50 10 8 8 40 10 10 9 55 50 8 40 9 35	8 8 05 1 1 05 2 12 3 35	8    65 12 33 495 565 67	E E E E W W W W W W W	25 ± 45 20 ± 30 20 30 25 ± 40 40 60 ± 65 35	C A h l k D t h d f m l m b H y l g b t t O O V y b g h t B n t q t t h g t h l m b t h g t O D b l
D 4	S S	8 30 29 29 20 17 14 29 5 56 5 49 42 35 29	    1 1 2 15 10 05	77 67 6  2 29 33 60 84 1 12 20 35 49 65	E D D D L E E E W W W W W W	60 1 35 5 30 60 65 25 30 75 50 60 15 70 ±	C O B d t t l B d t t l O S N t F p m n t d t n t h D b l O
D 5	K V S	9 9 14 10 5 0 14 14 10 10 9 14 10 8 9 55 14	05 8  05  2 2 7	745 705 185  385 445 64 48 8 16 245 88 87	E E D E E W W W W W W W	25 60 25 45 15 45 50 30 30 20 80 80	110 h g h n O O D t h d f l m b B g h t C F t O C O B l t t p
D 6	S S	11 5 10 58 16 13 10 9 38 38 38 58 54 48 38	1 4 2  1 1 1 25 2 5	66     1 4 85 33 42 87	E E E D L W W W W W W W W W W	20 40 20 45 10 15 40 80 80 60 20 25 25 5 30	Oh g g O O O O S l g h t l y t l l O O
D 7	K V S	8 55 50 40 40 30 5 56 9 15	1 05 2 8 4 15 1 05	815 22 5 0  81 455 45	E E L E E L W W	40 20 30 50 25 40 30 ± 90	O A l g t k p t h o u g h t h c t r f t h p m p l l t t h l m b
D 8	S S	9 15 8 10	1  1	77 33 9	E E E	25 ± 60 ± 15	V y f n t b d t t p S N t O p r m n c l n g

D t d b	H I S F	B	L t t d		L m b	H g h t	R m k
			N t h	S u t h			
1905							
J ly 8	SS						
	H						
	9 1	9		0 6	E	45	
	8 48			44	L	60	
	9 40			68	E	25	V y f t
	47	0 5		58	W	80	
	45	0 5		5 5	W	20	
	42	6		43 5	W	20	
	37	0 5		2	W	45	
	31	8	12	4	W	20	
		2	23		W	30	
	25	0 5	28		W	15	
	22		51		W	30	
	20	1 5	92		W	15	
					W	10	
D 9	KVS						
	9 20	1	48 5		E	25	
	12	3 5	33		E	70	
	2		10		E	45	Sh p d l h k
	8 57			5	D	20	
	55			10	D	30	F t
	50	1		30	D	100	Upl l l f b d
	30	8		68 5	D	3	
	10 20	1 5		57	W	30	
	15	1 5		36	W	25	D u b l
	0			20	W	110	D t h d f m l m b f l k i p e p t f t
	9 45	10	18		W	35 & 5	
	87		22		W	35	
D 10							S N t
D 12	SS						
	10 50		8		E	40	V y f n t S N t
	4	0 5		0 5	D	25	V y f a t
	9 9	2		6	E	20	
	10 30	5		69 5	E	25	V y f n t
	11 13	1 5		62	W	20	
	10	3		80 5	W	30	V y f t
	9 4	1 5		22	W	20	
	11 4		51		W	15	F t
		0 5	61 5		W	1 w	B g h t d b l
D 13	KVS						
	9 35	1	40 5		D	30	S N t
	28	2	10		E	30	
	20			17	D	30	
	20			28	E	45	
	20			34	E	35	O
	20			55 5	E	30	O
	20	3		68 5	E	40	O
	20	2		74	E	40	O
	20	2	32		W	35	O
	20	1	70		W	25	O
D 14	SS						
	8 48		68		E	15	
	48		67		E	15	
	45	0	45		L	1	
	43	2	41		E	25	
	41		32		E	15	
	37	3 5	11		E	50	
	35	1	8		E	25	
	32			17	E	25	
	5			40	E	50	
		1		47 5	E	20	Uppa half b d
	0	1		56	E	15	
	7 55	6		72	E	50	
	9 14	2		49	W	15	
	11			11	W	15	
	8			2 5	W	55	B d p t t b S N t
	6	0 5	8		W	25	D
		1	6 5		W	10	
		1	10 5		W	L w	C t d b y n h b t 20 h g h O

D t d b	H I S T	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1905	M						
J ly 14 SS	9 0 8 54	8 8	28 5 68		W W	45 60	
D 15 KVS	8 50 40 86 9 40 8 25 20 15 9 30 15 15 15 15 15 5	15  05 05   05 05    1 05	44 18 5 18 7 5      1 3 67	7 28 66 72 18 9 5 7 5	E D E E E W W W W W W	2 20 70 25 80 15 25 30 25 L w 25 L w 5 85 L w 25	C V y b g h t n d l k  B d t t p  D t h d f m l m b B d t t p } S N t
D 16 GN	8 29 9 54 52  50  48 40 37 35 34 34 30 30 10 13 8 29 10 10 8 5 1 8 29	2 15 05  12 5  1 2 2 1 1 1 2 4 15 05 1 6 2	66 48 48 27 5 16  6          28 66 71	       4 30 46 5 68 68 81 82 66 44 28 4 5	E E E E E W W W W W W W W W W W	25 15 15 20 30 & 15 30 15 40 15 20 25 15 20 25 30 15 60 0 ±	O  D t h d f m l m b C p m n (8 l 29 m) 80 h g h d q t d f t h p E t  B l t t p  O F t F l m t l C
D 17 SS	9 25 20 12 12 10 0 59 54 40	2 4   05   1 8 5	66 48 9 8 4      38 41 19 12	       38 41 19 12	D D E D D D W W W W W	25 30 ± 10 15 10 30 20 25 35	D b l S N t
D 20 KVS	10 50 43 84 9 0 10 15	4 15 1  1	87 81 5  45	 9	D E E P W	30 40 20 45 60	A h l k  O
D 23 KVS	9 30 25 20 5 10 5 9 50	1 25 05 2 4 05	64 5 17  36 66	14 5 24	E E P E W W	50 80 80 60 60 ± 50	Slightly l g O
D 24 SS	8 30 19 16 10 6 8 9 14	2 05 1 3 25 05	62      71	4 5 18 6 5 38 54 5	E E E E D W	50 20 20 20 25 80 20	

D t d b	H IST	B	L t t d		L mb	H ght	k m k
			N th	S th			
1905	m						
ly 24 KVS	9 10 8 2 0 8 54 46 40	3 2  10 6 2 2		65 51 19 9 8 32 41 66	W W W W W W W W	60 20 0 25 20 10 40 30±	N th h lf y f nt  B d t th mddl
D 25 KVS	8 40 28 22 15 10 30 58 55 50 45 8 37	2 3 5 2 0 5 1 0 5 2 1	60	28 41 50 66 66 5 5 16 45 68	D D D D W W W W W	60 7 50 45 30 25 45 1 20 30	V y f t 5 b d t b 175 hgl C  Γ t Γ t  O
P 26 SS	9 19 15 10 10 3 8 30 0 10 0 9 48 45 42 36 36 32	4 4  9   9 2 2  7	29 1 14 10 5   18 17 24 28 43 5		Γ P E D I D E E D W W W W W	8 35 25 20 30 25 60± 30 60 80 30 30 1 30 15	Ab t 4 b d l t d t h d f m l m b
D 27 KVS	10 28 28 8 45 38	1 1 14 4	63 59 24 5 40		E D E I W	45± 45± 60 30 25±	S N t D bl
D 28 SS	9 37 3 19 15 12 6 6 8 49 39 39 35  29 23 21 19 16 14	1 4 2   2 1  4 2 1 1 1 14	6 58 28  21 5 44 46 51 58 54 58 15 11 10 2 27 43 51 55 67		Γ L D E D W W W W W W W W W W W	15± 60± 40 25 60± 20 20 30 0 20 25 20 20 20 20 20 20 20 20 20	O t d O ly h n t p 60 hgl C  l l m t l m b L t t - 6 W  S N t
D 29 KVS	8 20 20 10 7 9 25 8 0 9 54 15	1 1  1 7 5 2	60 5 58 5 35 5 28 5 3 8 30 48 64		E E E E E F E E W	25 25 45 20 25 20 45 60 45	C t d C B d pt t b Slightl l f C Ab t tw hgl d l h l g n C D t h d f m l m b C Alm t t t h t p f th l t l m n n Sl d O p m d t L t - 78 W

D t d b		H I S T	B	L t t d		L m b	H g h t	R m k
				N t h	S t h			
1905								
J ly 29	K V S	9 8 0 8 55  9 35 8 45 40 35 30	1 5   1 2 3 1	  7 12 14 5 20 48 1 67	16 0	W W W W W W W W	60 70 35 20 20 15 30 20 60	} D t h d f m l m b O t d b y t k m O T p l g t k l m t p l l t l m b
D 30	G N	9 37 5  8 50 56 9 46 8 50 9 27 32 35	2 3  0 5 1 1 5 1 5 1 1	73 25 5 4  18 5 34 70 5	  2 4 5 53	D E E E D W W W	45 ± 15 ± 12 20 ± 20 ± 20 30 15 20 ± 30 15	
D 31	S S	8 38 40 44  48 9 22 8 51 9 10 12 20	1 1 5 0 5 2 0 5 1 5 1 5 2 4	70 73 64 48 14 5   44 59 67	     8 5 14 5 19 27	D E D E D E E E E W	20 30 1 10 10 40 ± 20 10 25 0 ± 10 10 30 ±	N t    C D b l l p t n d t L t - 37 D t l n d t l m b m O t L t - 38 D D b l C p m 6 b d 190 h g h
A g u t 1	K V S	11 30 9 46 46 11 55 40 40 35 35 35	1 5 1  0 5 1 5	72 11 5  39 68 23 25 30 5 35 38	  39 68	E D D W W W W W	40 C 5 45 40 25 25 25 35 25	D b l O O B d p t b
D 3	K V S	10 43 35  35  11 9 10 55 50 46	1 5   1 0 5 1 0 5	70 31  28 23 5  32 5 49 5	  35 33	D E  D  E W W W	40 P   P  80 35 25	S N t T p f O p m n f w n thw d H g h t (O) 30 ± T p f O p m n n f w thward H g h t (O) 40 ± T p f O p m f w n thw d H g h t (O) 30 ± D b l
D 4	K V S	8 35 30 23 23 17 52 52 52 5 9 7 7 8 52 9 22	2 5 4 0 5 4 9 5 1 1	76 68 38 28 5 25 14  10 24 26 33 40 5 32 5 5 0	     10 24 26 33 40 5 32 5 5 0	D D E E E E E E W W W W W	30 25 50 20 55 60 ± 60 3 15 25 & 35 15 15 20 ± 25	Slightly t l l O O p n 6 b d B d t t p O O B d p t t b O

D t d b	H I S T	B	t n d		L m b	H g h t	R m l
			N t l	S t h			
1905	m						
A g t l K V S	8 58 53 0	2 05 2	3 39 68		W W W	65 & 85 20 30	D bl C p m 2 b l
D 5 K V S	8 15 9 7 7 8 10 7 5 9 90 20 2 0 0 8 10 25	5  1 1 1 18 35 25 05	37 27 11 2 12 23 275 11 75	1 485 65 67 18	D D D W W W W W W W	90 60± 60 20 1 40 20 40 & 35 30 1 45 25 35 5	O T p b l l l y m t t h b p O A l t h l l l t D bl
D 6 S S	8 57 52 50 47 44 39 36 35 31 9 14 8 30 9 3 33 31 4 24 4 10 10 10 8 50	15 5 2 05 4 2 1 1 05 35 15 3 35 5 15 15 10 15 87	835 51 15 38 135 05 16 21 10 19 62 74 51 28 17 15 12 5 3 5 20 28 10 87	16 21 10 19 62 74 51 28 17 15 12 5	D F D F F D D D F W W W W W W W W W W W W	10 30 30 40 50 5 20 20 15 70 10 15 10 2 180± L 60 30 25 30 45 90 25 15	y b g h t C t d O O l g l t l y d l l d b t h w C B l p t l } O n t l t t p S N t D bl
D 7 S S	9 15 13 8 9 6 48 45 40 37 34 34 32 29 9 28 22 20 9 38 34 30 26 23 20 18	1 25 25 3 7 6 4      1 1 1 25 4 4 15	82 89 62 50 415 115 05      18 195 21 255 895 415 48 65 72 45 25 18 50 59 68 695	6 18 195 21 255 895 415 48 65 72 45 25	F D D D F D D D D E E E E E W W W W W W W W	10 50 20 60 70 30 15 40 20 20 20 15 15 10 60 10 25 30 15 25 80 20 20	Ab t 70 l g h n O 180 h g h O } O t d t t p O D p t N M g d l b g h t V y b g h t d d B d t t p S l d b t l d t t p t b l l l B d t t p T p m t l m b t L t + 5 W



D t nd b ry	H IST	B	L t tud		L mb	H ght	R m k
			N th	S th			
1905	M						
A g t 8 KVS	9 10	05	80		E	10	
	10	1	75		D	20	
	5	4	68		D	65	
	0	15	58		D	20	
	8 58	15	47		D	65	55 hgh O
	48	25	415		E	90	{ O t d by t l O
	35	1	305		E	40	
		05	27		D	1	
		05	25		E	15	
	30	1	215		D	25	
		2	175		E	L w	N d Mg l b ght
	25	6	12		D	5	
	20	1	8		D	25	
	15	5		95	E	45	
	12	1		15	E	45	
	5	2		42	E	30	
	9 6			70	W	45	B d t t p t l b
	30	05		80	W	40	D t h d f m l m b
	25		05		W	25	
		05	4		W	20	
	15	05	50		W	25	
	18	1	78		W	20	
	18	1	7		W	20	
D 9 SS	9 18	8	78		E	50	A t l f t l t p f w L t + 80 E O
	8	05	68		E	70	
	5	2	58		D	15	
	8 55	18	465		E	40 60	G t t h ght 80 n O
						d 70	
	40	4	11		E	25	
	39	05	1		E	15	
	36	6		18	E	60	E pt N Mg d F l b ght V y
						f t O	A h l l
	82	2		405	E	20	
		15		48	E	10	
		15		61	E	10	
	30	05		78	E	10	
	9 35	05		67	W	30	V y f n t
	30	2		325	W	20	A h l k
	29	4		10	W	20	
	28	1	2		W	30	
	24		18		W	2	A f t l d l t d t h d f m l m b
		15	21		W	20	
	21	2	29		W	15	
	17	05	405		W	20	V y f n t
D 10 KVS	9 10		77		E	30	O B d t t p S N t
	10		78		D	30	O
	10	0	685		E	120	O
	10	05	515		E	60	O B d t t p
	10	15	49		E	25	C
	10	15	455		E	30	O
	29	1	285		D	30	{ S N t
	29	05	255		E	30	
	20	05	9		E	25	
	12	05		485	E	25	
	10	5		285	W	40	O
	10			1	W	40	O F t
D 11 SS	9 4	1	775		E	30	
	4		77		E	55	
	8 57		71		D	35	Slightly l g O
	55		50		E	20	Slightly t l C
	54	2	46		E	25	
	85						
	t	25	38		E	100	S \ t
	50						
	32	5	55		E	80	O p m 8 b d d 50 high t th
	22	15		2	E	15	hgh t pl

D t n d b	H I S T	B	L t d		L m b	H g h t	l m k
			N t h	S t h			
1905	H M						
A g t 11 SS	8 14	3		4 5	F	40	F t
	12	15		18	F	20	
	11			51	F	25	
	10	2		68	D	45	F t
	9 88	1		84	E	15	
	37			91	W	15	
	8 52	2		68	W	20	C
	9 31			43	W	45	L g C l t t b B t d t L t - 86
	8 5			25	W	40	W C t d l y f t t l t t h l t
	9 21	4		18	W	2	J C
	25	1		105	W	30	W t l l
	10		24		W	25	D b l O l l t l y d p l l b t h w y
D 12 GN	12		49 5		W	60	T p l w g b t s t l d
	9 4	6	31		F	50	P m t d t L t + 16 D t w t t
	10 7	0		9 5	F	12	t h g t h l b
	6			34	L	15	
	4	1		61	W	1	
	8 46			46	W	20	C
	40	05		41	W	15±	O
	10 1			89 5	W	30	
		1		85	W	0±	
	9 58			28	W	20	A l t l l l l l t t d t t h l t p m
	8 40	55		28	W	30	C J b y f t t l
	46	1		18	W	0	C J d t l l l m
D 13 KVS	10			5	W	35	O A l l k
	9 55	0	15		W	1	
	54	05	1		W	10	O p m 20 l g l d t d t L t
	2	25	57 5		W	30	+ l W t
	9 4	1	7 5		F	70	35 l g h C
	0						O S N t
	15	18 5	27		E	0±	O p
	12	3		82	L	50	l g h t p l
	80	05		38	W	25	C T l t l t I t 45 F
	12	05		34 5	W	35	
	20	2		25 5	W	1	O T l t d t I t - 26 W t
	42		2	19	W	20	I l t d g t I l - 3 W t
D 15 GN	21	2	15		W	2	O
	20	05	38		W	15	
	2		4		W	0	C
	2		50		W	3	O
	9 10	4	13 5		I	15	
	8 50	05	6		L	60 & 75	S N t 1
	55	05		28	L	15	
	9 47			74	F	20	
	45			78	W	20	
	44	15		48 5	W	15	
	42			44	W	15	
	85		2	8	W	2	A t f c l g t l d f l m b
D KVS	25	05	18		W	85	S N t
	21	05	48		W	45	B d t h l l
	19	1	61 5		W	15	
	9 30	1	68		E	50	
	0	6	30		F	I w	
	8 35	8	5 5		L	105	D n b l
	25			8	E	20	
	20			68	L	15	
	9 34	1		62	W	50	C
	40	17	20 5		W	7	H g h t t d t l w g t l d
	35	1	64 5		W	20	

D t n d b	H I S F	B	L t t d		L m b	H g h t	R m k
			N t l	S t h			
190							
A g t 17 G N	8 38 34 32 31 30 29 20	5 1 1 1 5 0 5 1 5 7	68 5 39 35 5 31 7 5 8 5		D D E E E D E	45 12 15 12 12 60 60 70	T l l n O D  F t d f l m t l
	10 5 5 9 22 18 15 15 8 45	4 5 1 5 1 2 1 5 0 5 1 5		31 67 5 70 78 08 21 5 19	E L D E W W W	75 30 15 30 ± 10 80 15	
	9 10 8 1 41	22 5 3	21 61 5 70		W W W	50 & 90 45 ± 12	A l g l d m t g l m b l p l F t
D 19	8 43 43	4 4		64 14	E W	40 30	C S N t O
D 20 G N	8 41 42 40 38 37 33 30 25 20 9 24	1 5 0 5 2 1 2 7 1 1 5 1 5	65 5 46 5 88 15 5 8		E E E E E F D E D	30 20 20 ± 15 15 45 40 ± 30 35 15	
	20 20 18 14 14	1 1 1 1 10 5		47 43 5 26	W W W W W	40 ± 10 ± 10 P	
	8 59 58 57 50 50	2 2 1 5 2	31 36 39 61 60		W W W W W	10 20 15 20 60	S N t F l m t l B d p t b
D 21 K V S	9 10 13 8 35 35 28 23	0 5 1 0 5 1 0 5	72 67 15 5 12		W D E E D	0 35 15 10 20 20	O 30 h g h O
	9 13 8 20 9 13 8 55 50 4	0 5 1 1 5 1 C		43 69 5 71 42 5 13 5	E E J W W W	25 60 L 45 80	} A t l j t p f t h d t w p m n m C d m t l m b t L t - 45 E t T p m t l m b g t L t - 68 E n O O A h l k B g h t y b g h t d b s b d n O
	9 13 50 12	0 5 7 0 5	12 20 5 35 67 5		W W W W	85 50 ± 35 60	
D 24	14 56 56	1 1	6 5	2 5	W W	P P	S e N t O F n t A h l k F n t
D 25 K V S	8 43 43 45 40	6 2 0 5 8	61 54 27 5		E E E E	105 25 15 60	O O O } S N t

D t a b	H I S T	B	L t t d		I m b	H ght	R l
			N t h	S t l			
1905	M						
A g t 25 KVS	8 35 30 2 20 9 5 0 0 8 55	5 2 05 1 05 8 05 4	35 15 24 43 485	275 18 605 70 50	D E D D W W W W W W	40 55 25 70 0 10 50 20 10 80	T p t lmb t L t +5 W Cl g p dly
1) 26 KVS	9 11 15 5 & 8 45 1) 0 20 20 J 11 11 11 11	8 3 15 5 1 05 05 1 1 1 1	68 165 65 05 155 85 48 49 50 69 735 795 685	05 155 85 48 49 50 69 735 795 685	E E D L D E E E E E E W	90 & 60 35 10 L w 55 & 20 20 60 20 20 40 60 90 50	C S N t 40 l gh C B d t t p 75 hgh C O t d C O O O C
0 27 KVS	8 57 11 53 45 1 87 30 9 15 3 1	05 1 05 1 4 05 6 25 15 1 15 1	73 67 615 31 28 35 15 145 205 37 685 69 05 35 51	15 145 205 37 685 69 05 35 51	W E I D I E D I D W W W W W W	30 45 50 50 30 10 25 20 15 75 0 15 25 15 25	F t O F i t B ght t t p B ght t t p V y b ght D D D b b b b ght T I t lmb g n t L t - 29 D F t
D 28 GN	J 9 9 0 8 58 10 15 13 15 9 30 25 21 21 14 8 44 40	05 1 2 2 1 5 05 3 7 5 05 1 15 1	60 565 15 85 0 8 22 66 87 55 6 105 375 5 74	15 8 22 66 87 55 6 105 375 5 74	L L I D I E D W W W W W W W W	35 20 15 15 90 40 10 45 30 30 50 40 30 & 15 40 90	D t h d f m lmb B l dly h g g S l g t l y d p l t d O O h g g B d t t p O B l t t p O
1) 29 KVS	8 35 10 0 8 24 20 10 0 0 9 30	4 1 15 05 1 05 1	61 295 85 9 35 71 68 25 0 25 85	1 35 71 68 25 0 25 85	E D E E F E W W W W W W	45 40 Low 50 30 25 25 15 20 0 35	45 hgh C S N t 1 50 hgh C } C p m n t d f m F t L + 3 D t + 1 E S N t 2 C T p f w w t w d f b t 4 55 hgh C

D t d	H I b T	B	L t t d		L m b	H h t	R m k
			N t h	S t h			
1905	M						
A t 29 K V b			14 5		W	20 ±	D t h d f m l m b H g l t 45 O
D 30 G V	8 55	2	37		W	30 ±	
	10 7	0 5	72		W	45	O F m t
	9 9		73 5		W	1	
	8		83		W	12	
	5	1	61		E	15	
	0	8 5	33		E	60	
	8 45	4	20		D	60	} O t d t t p C
		1 5	22		D	60	
		2	17		D	75	
	9 35		4		E	30	
	8 32	1		36 5	E	20	
	8	1 5		39	E	20	
	29	2		49	E	30	F m t y
	2	1		68	E	1	
	9 24			70	W	45	} O t l t t p C
	22	1		65 5	W	25	
				63	W	1	
	10 7	0 5		41	W	20	O
	9 20	1		31 5	W	30	
	18	1		7	W	1	
	10		8 5		W	1	
	1	1	13		W	20	
	1		17		W	15	
	11	0 5	29 5		W	12	
D 31 K V S	9 14		77		W	30	C V y f t
			65 5		E	20	
		1 5	60		E	20	
	2	2	44		E	1	
	15	22	21		E	45 & 75	4 5 l m t d t
	15			8	E	2	
	10	1		9 5	E	25	
		1 5		25	F	30	F l n t l
				30	F	1	
	4	0 5		44 5	L	20	F t
	10 25	0 5		50 5	L	15	
		2		66	W	15	
	20	1 5		35	W	0	} O t d O
	20	1 5		31	W	50	
	15			24	W	15	
	9 14			21	W	20 ±	O
		1	8		W	20	
			38 5		W	20	
	10 10	1 5	49		W	30	
S p t m b 3 G N	9 48	2	73		D	15	
		1	37		D	20	
	45	1	29 5		D	0	
	10	1 5	17 5		D	12	
	10	2	13 5		D	2	M t l l
	6	0 5		17	F	60	B d t t p
	4			36 5	D	30	
	2	1		43 5	E	15	
	2	0 5		45	D	15	
	0	0		58	E	30	
	8 57	1		58 5	D	30	
	57	2		62 5	D	20	
	61	0 5		78 5	W	30	C B d t t p
	9 55	0 5		07	W	40 ±	
	8 51			62	W	55	C T p b l d f w t h w d
	9 53	1		30	W	20	C p m 30 h g h d t d t L
							-23 W t
	2	1		19	W	10 ±	
	8 51	0 5	40		W	15 ±	
	0	0 5	52 5		W	25	
D 4 K V S	10 29	2	70		W	0	C S N t
	23	0 5	71 5		E	20	
	28	0 5	70		E	20	
	10		68 5		E	20	

D t d b	H I S T	B	L t t l		L m b	H g h t	R m k
			N t h	S t h			
1905	H M						
S p t m b 4 K V S	10 10	05	87		L	20	
	9 55	1	42		D	15	O p m 2 b d d 4 l h
	15		29		I	40	
	10 23	05	17		W	50	O B d t t l F t
	9 5	05	10		D	15	T p f w t w d
	5		8		E	10	
	5	0	6		E	15	
	5	05	8		E	1	
	0	1		16 5	D	105	
	10 23	05	49		D	40	O
	23	3	54 5		D	0	(
	8 35	05	61 5		D	60	
	10 23		87		D	60 ±	O F m h b y j t h l t
	23	05	73		W	15	O
	23		65 5		W	35	C
	23	05	88		W	15 ±	O
		05	30 5		W	25	
	17	5	30		W	40 & 5	60 l g h O
			23		W	30	D t h d f l m b m t l m b g m O t
	23				W	20	L t - 25 W t
			14		W	20	O
D 5	14 44	15	24		D	8	
	44	15	13		E	80	
	44	8		19 5	E	85	C (D y l d y)
	44	05		49	E	30	
D 10 K V S	11 43	2	79		W	25	
	40	5	84 5		I	45	
			11		L	20	
	10	4		2	D	40	M t l m b g t L t G E t
	9 45	9		15 5	E	40 & 30	
	45	4		23	D	15	
	35	13		48 5	D	55 40 &	
						30	
	8 46	1		71	L	120	O F t
	0			47	W	30	O B d t t p
	46	2		37	W	2	O
	46	05	1		W	120	O B d d w d m t l m b g t L t
							- 15 W t
	40	5	22 5		W	65	O
D 11 G N	8 53	4	83			20	
	48	55	33		F	30	
	40	2	13		-	20	
	45	1	85		L	30	
	45		45		D	30	D t h d f m l b
	42			8	D	15	D
	41	15		17	D	0	
	41	1		19 5	D	20	
	30	6		40	E	80 & 15	
	35	05		48	E	80	
	35	1		49 5	E	80	O t d t t p
	8	05		53	E	30	
	30			69	E	45	D t h d f m l m b
	9 30	15		50	W	30	
	30	1		46 5	W	30	
		05		44	W	30	
	31	05		39	W	20	
	8 35			23	W	30	O
				8	W	20	80 h g h O
	9 0		05		W	30	D t h d f m l m b
	8 35	05	55		W	25	O
	35		63		W	25	O
D 12	9 23	1	82		L	20	O S N t
	23	05	76		E	45	O
	23	2	73		E	30	O
	23	15		56	W	25	O
	23	05		50	W	45	O
	23			47	W	30	O

D t d b	H I S T	B	L t t d		L m b	H g h t	R m k
			N th	S th			
1905							
S pt mb 12	9 23 23 28		8 11 59		W W W	L w L 5	O C O
D 14 KVS	11 20 18 15 10 10 10 54	2 2 1 05 1	76 38	16 31 5 37	E E E E W	2 10 2 20 30	S N t  O
D 15 GN	8 16 44 10 9 28 28	1 0 05 1 1	36 5 3 5 35 5 38 5	35	E E E W W	20 5 25 50 15 ±	
D 6 KVS	14 15 15 7 14 45 15 5 0 14 55	2 05 1 7 1 05	22 76 61 5 7 5 20 5 28 48 5		E E W W W W	30 20 20 75 20 40 30	C S N t O
D 17 G.N	11 2 7 16 10 5 55 11 14 13 12 9 6 4 14 14	4 05 05 05 1 05 1 15 1 2 2 05	73 61 5 9 20 24 79 5 49 5 23 6 5 18 29 42 6t 68		E D E E E W W W W W W W	00 ± 12 20 20 45 ± 10 ± 30 50 35 20 30 15 15 40	O p n n 2 b d C O
D 19 GN	9 9 1 8 30 9 27 25 35 20 43 41 39 39 36 35	45 1 4 15 05 05 1 1 05 1 1 1 1	80 78 5 71 48 5 37 5 10 8 5 39 5 47 5 20 5 9 12 31 37 5		E E E E E D E W W W W W	75 45 60 ± 15 15 0 15 30 10 50 15 20 30 20	} M tng ttp D t h d f m lmb Ab t 25 hgh n C 80 hgh O
D 20 KVS	9 22 6 20 [14 10 9 22 8 55 50 44	2 4 1 1 05 8 05 8 2	81 71 28 13 5 5 5 34 5 48 5 35 31 20 32 37		E E E E E W W W W W W	100 65 15 25 15 15 25 ± 20 30 15 25 25	C 75 hgh C A t d 25 hgh C T p f wing thw d Ar hl k
D 21 GN	8 20 18 18	5 05 05	22 5 18 5 15 5		F E E	30 15 15	

C t l b v	H ur IST	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1905	M						
S p t m b 21 G N	8 1		35		D	12	
	15	05		125	L	18	
	15	3		18	D	12	
	10	05		47	L	15	
	9 38	1		89	D	25	
	43	1		31	W	40	V y f t M t l m b g t L t - 43 W
	43	5		255	W	25	C A l l l V y f t
	32	4		18	W	30	
	31	1	185		W	20	
	28	25	42		W	10	
D 22 K V S	8 45	05	78		E	40	C
	45		71		E	30	C
	15	1	87		E	50	C
	22	5	25		E	20	D h l
	20	05		1	E	10	A t g j t w t h f t l l f w i g b t h w y
							f t h t p
	15	05		14	D	15	
	1	7		0	E	45	V y f t C
	15	2		27	L	25	
	15	05		31	E	15	B d t t p
	15	05		655	E	20	C
	0	3		89	E	75	
	55	1		505	W	20	F t O p m t d t L t - 55 W
	15			38	W	10	C
	50	1		34	W	25	M t l m b g t L t - 52 W
	45	1		215	W	60	C I l w t l w d t t p
	15	5		185	W	40	9 l g t l y t l l O
	40	1	18		W	30	
	30	2	28		W	10	
			46		W	10	
	25	2	68		W	20	D h l
D 23 K V S	11 30	1	585		E	20	S N t
	10 50	7		265	E	40	A h l k
	11 13	1		355	E	10	T p f w g t h w d
	7	1		875	E	20	
	5	1		505	W	15	T p f w g t h w d
	0	5		13	W	40	
	27			235	W	10	
	25			2	W	15	
	10 57	1	385		W	25	
	1 22		18		W	15	
D 24 K V S	8 10	15		45	D	5	S N t
	9 35	1		17	E	25	
	10 10			48	W	10	
	0	1		20	W	20	
	0	5		155	W	0	
	0	1		11	W	30	
	9 55	05		1	W	0	
	50	1	35		W	0	
1) 25 K V S	9 5		72		E	35	
	8 58	8	175		E	15	
	40	4		1	E	80	
	40	15		55	E	45	
	30	05		385	E	40	O t d t t p
	39	4		87	E	65	R t B d t t p
	39	12		40	W	60	C
	9 25	2		95	W	30	
	25	15		7	W	20	
	18	1	5		W	25	
	15	15	49		W	80	
	10	2	68		W	65	2 b d O
D 26 S S	9 29	8	88		E	40	C
	8 59	25	785		E	30	65 h g h O
	55		59		E	25	
	49	1	24		E	25	
	49	1	18		E	15	



D t d b	H IST	B	L t t d		L m b	H ght	R m k
			N th	S th			
1905	M						
S pt mb 26 SS	8 45	8	4		E	40	T p f w i g b t h w y
	45	05		2	E	4	Alm t t d t t h l t t p
	41			8	E	25	
	8	1		37 5	E	20	
	34			49	E	25	Sl d t ght t l
	34			50	E	70	D
	29			64	L	70	B d t t p
	25			70	E	30	D
	9 29	2		88	E	15	D bl
	29	2		82	W	30	O
	26	1		72	W	25	F t
	29	05		66 5	W	25	O
	22			48	W	50	T p f w t h w d O
	0	1		14 5	W	10	
	19	2		6	W	30	Tw p m m t g t t p
	15		15		W		N p m n b t O h d pl d lightly t d
	13		27 5		W	60	n h r m ph
	11		36		W	15	
	9	2	48		W	30	
	5	2 5	69		W	50	
D 27 KVS	8 35	1	28		D	15	S N t
	35	1	20 5		D	2	B ght m t l l
	30	05	14		E	20	
			4		E	50±	O mp t ly b ght t t
	20	3		25	D	50	
	15	15		18 5	E	1	
	9 25			44	E	60	
	8 35	1		65 5	E	75	Sl d d h d f m l m b
	9 19	2		73 5	W	15	O
	10			70	W	30	
	10	05	33 5		W	35	
	0	25	36 5		W	15	O t d t t h l t p m O
	0	05	48 5		W	60	
	0	6	51		W	20	
	8 50	05	71		W	60	
			76 5		W	15	Slightly t l l C
D 28 KVS	8 20		36		E	30	D t h d f m l b
	20	05	34		E	20	
	9 0	05	18 5		E	30	
	8 0			11	E	20	F t
	58			63	D	10	
	55	2		69	W	30	
				34 5	W	20	30 hgh O
	21	05		28	W	20±	O
	9 7			13	W	5	B ht
		1	46		W	20	
	8 50	15	48 5		W	30	F t O
	50	2	52		W	45	Sl htly t l l O
	30		64 5		W	10	
	21		68		W	90	C V y f t
	25	2	70		W	40	F t
	25	2	73		W	40	D
D 29 SS	8 58	2	46		E	5	
	55	45	40		E	45 & 70	M t l l
	51	15	34		E	20	
	48	4	25		E	40	M t l l
	45	05	18		D	20	
	40			12	D	90	S N t l
	37			05	E	20	
	36			24	E	20	
	32			36	E	20	
	9 34			73	W	25	
	38	1		67	W	25	
	32	15		60	W	20	
	30	3		27 5	W	25	

D t and b	H IST	B	L t d		L mb	H ght	R l
			N tl	S th			
1905	M						
S pt mb 29 SS	9 28	1		21	W	35	V y f t C p 40 hgh d 2°
	25	05		15	W	40	b d
	20	05	16		W	90	T p l d
	15	12	47		W	4	D
	5	5	78 5		W	45	W t l f f d l p m f t
D 30 KV	8 42		1		D	15±	S N t 2
	42	05	68		R	20±	O
		05	64		L	10	O
		05	54		D	10	
	35		44		D	10±	
	35	2	40		D	35	O t d t t l
	42		31		E	2	O } O t d t t p
	30		28		P	25	O p m 2 l l t b
	30	1	25		D	0	S N t
	15			18 5	E	140	
	10	2		38	D	1	
		1		71 5	W	15	O p m l g t l y t l l d 2 b d t
	9 15			68	W	30	b
	5	45		27	W	25 & 20	F t L g O
		1	30		W	15	N t h h l f t 9 t O
		7	47 5		W	5 & 80	F t
	8 45	1	76		W	0	D
O t b 1 SS	8 58	1	70		D	(0	F t U l p l f d t h d f m d l w O
	50	1	05		D	5	C l m 90 l g l
	48	15	40		E	45	t d t t l b l m O
	44	45	14		D	0	
	44	2	7		D	15	
				9	D		C & D l p l b d l w y N p
	37	6		15	E	30	b b b f g h
	33	1		22	R	5	
	3			30	E	2	
	30	2		47	F	25	
	28	05		67 5	E	20	
	7	05		7	E	30	
	25			71 5	I	25	D t h d f m l l l l t t l
	9 28	4		66	W	10	5 t l t b C
	23	1		82	W	30	T l f w t w d O
	20	8		26	W	45	D b l
	1	9	11 5		W	40	A l l l } t g t b
	10	2			W	25	
	8		33		W	20	
	4	4	42		W	20	
	4		45		W	20	
	4	9	50 5		W	25 & 0	
	0		70		W	30±	V y f t
D 2 KVS	8 40		6		P	25	
	40		62		I	20	35 hgh O
	9 8		42		D	15	C
	8		38		D	15	O A l l l t d t l d f m l m b
	8 35	10	19		E	25±	O t d t b
	35	1	12 5		E	35	E g h t
	25	6		22	D	70	L w } A l n t t t k t t l 8 p
	15	15		41	D	L w	O
	15	05		46	E	L w	O D t h l l n l m b
	15	1		49	E	3	D d
	9 8			63 5	E	1±	F m t
	8			65	E	15±	O
	20	05		73	L	25	F t O p m t g d 75 hgh b t
	8	1		64	W	20	t p f t
				42 5	W	20	C t d t t l O
	15	2		31	W	60	T p d w g w t w l O
		1		28 5	W	30	
	8 55	05		19	W	15	

D t d b	H I S T	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1905							
O t b 2 K V S	9 8 8 50 50 50	1 4 2	9 15 20	18	W W W W	20 ± 30 30 30	O
D 3 S S	9 23 20	3 2	31 17		E L	30 ± 25 ±	S N t
D 9 S S	9 7 3 1 8 57 54 50 47 47 45 39 37 9 45 44 41 38 34 8 28 9 25 18 1	2   2 3 2 0 5 3 0 5 1 2  0 5  1 5 1 5 5 4	52 49 35             1 5 18 72 5 78		E D D E E E F D D E E W W W W W W	80 35 20 45 30 70 15 20 20 75 25 30 ± 0 ± 10 20 25 40 & 15 20 65 80	A h d t h d f m l m b F t  V y f n t 60 h l O A l t g t l i t h d f m l m b B d t h m l d l V y f t E p t a D b l
D 10 K V S	10 15 9 35 53 53 50 50 15 10 52	1 0 5    1 1 1 0 5	68 5 52 5     7 5 38 5		E D E L D E E W W W		S l d S N t D A m l l d d t h d f m h m p l
D 11 S S	8 46 43 39 35 28 26	2 2  1	70 51 19		D F E E D D	3 ± 30 ± 15 25 10 10	S N t
D 13 S S	11 45 18 16 16 12 10 10 10 12 4 3 11 54 54 52 50 48	2 2 1 1 1 1 1 4 2  2 1 5 0 4	84 50 31 21 14 10  8 4   17 26 38		D D E D D E E W W W W W W	30 ± 30 ± 20 0 25 30  15 10 15 60 ± 30 30 15 25 30	A b l t l m l d l f t h p m T w b g h t t k t b U p p h l f d t h d t m t h l w A h l k D t h d f m l m b C t d t t p
D 16 S S	9 55 55 58 58 47 48 40	4 1 1 1 0 5 2 1	84 84 78 71 48 36 32		W E E E E E E	30 30 30 30 60 70 70	C t d t t p n O F p f w t w d O p m n n 6 b o a d t b d d f t f m B d t t p C t d O

[illegible]

D t d b	H nr IST	B	L t t d		L mb	H ght	R m k
			N rth	S th			
190							
O t b 20 S	10 45	05	74		E	60±	} V y f t M t g t t l } O p m f l y t S N t 2 b d t b O r t h d f m l m b A h l l  r p m t t h l t p m S p h t w t h t w p t l y f l l d p n O  D b l r t D  O O l p m 40 h g h d t d t O l p m O H y d g l l p l d b t l w y t 7 S l l a t t m t b g b t l A l  M g l b g h t t l T p b l d l t g t w l 60 h g h O V y f t C  S N t C B d t t p  C B d t t p  S N t V y b g h t l l p t N M g n d r l b g h t  B d t t p } O t d m O D S l g h t l y b d O O O r t 90 h g h O  O O A h t y b g h t t k m O F t
	45	05	69		D	60±	
	9 19	75	15		E	80	
	15	05	85		E	45	
	8	2		11	E	15	
	1			20	D	60	
	8 59	2		24	E	15	
	58	15		87	D	15	
	58	8		48 5	E	75	
	10 7	05		48	E	15	
	2			64	W	40	
	0			54	W	10	
	9 54	15		81	W	90	
	54	8		21 5	W	45±	
	40		22 5		W	45	
	46	25	24		W	25±	
	41	1	9		W	40	
	38	15	42		W	20	
	36	1	44 5		W	25	
	30	4	62		W	35	
D 21 S S	9 28	05	72		E	40	C O l p m 40 h g h d t d t O l p m O H y d g l l p l d b t l w y t 7 S l l a t t m t b g b t l A l  M g l b g h t t l T p b l d l t g t w l 60 h g h O V y f t C  S N t C B d t t p  C B d t t p  S N t V y b g h t l l p t N M g n d r l b g h t  B d t t p } O t d m O D S l g h t l y b d O O O r t 90 h g h O  O O A h t y b g h t t k m O F t
	7		68		E	20	
	28		59 5		E	20	
	8 58	0			E	25 & 20	
	52	2		14	E	20	
	52	5		2 5	E	25 & 20	
	48	1		46	E	90	
	42	15		65	E	80	
	9 41			66	E	70	
	28			71	E	55	
	38			9	W	2	
	35			65	W	90	
	34	4		52 5	W	20	
	28	2		81	W	55	
	28	5		21 5	W	65	
	22	2	15	6	W	25	
	0	2	32 5		W	15	
	16	25	45		W	60	
	15		58		W	35	
	14	65	64 5		W	15	
					W	30	
D 22 K V S	9 15		71 5		E	20	C B d t t p  S N t V y b g h t l l p t N M g n d r l b g h t  B d t t p } O t d m O D S l g h t l y b d O O O r t 90 h g h O  O O A h t y b g h t t k m O F t
	20	05	70 5		D	20	
	1		41		E	25	
	15	35	17		E	40	
	7	5	8		E	25	
	10 18		2		E	20	
	9 0	1		21	E	25	
	0	1		23	E	90	
	0	1		28 5	E	45	
	8 50	1		45	E	45	
	9 15	05		64	E	35	
	15	15		73	E	45	
	50	1		80	E	25	
	11 0	3		68	W	70	
		5		19 5	W	40	
				14	W	20	
	9 15	1		5 5	W	30	
	15		22		W	30	
	35		44 5		W	20	
	35	2	47		W	60	
	30	1	68 5		W	70	
	50	2	72		W	25	

Date	d	b	H IST	B	L t t d		L m b	H g h t	R m k
					N t h	S t h			
1905									
O t b	28	SS	8 49 40 8 84 9 51  8 80 28 23  18  9 14 11 9 51 51 3	1 2 05 2  5  1 1 05 2	71 20 205 11 6  15     17 81 48		H H H H E  H H H H W W W W W	45 25 40 40 80±  80 & 25 100 60± 100± 50±  60± 80 20 20 35	M t l l S l h t l y b d O T p d t h d f m b t t m C A l h d t l f w g } O t d O b b b b g h t t b } O t d B l t t l } C T p m t l t p m T t O p m f l y t g l t d V L t - 69 L t V y f t O p 120 l h  O B g h t O B l b l O
D	24	KVS	8 50  48 45 40 40  90 9 3  r 0 0	0  5 15 15 4 05  05 1 25	75 61 51 27 95 5  24 675 68  75 0 58		H H H H H H H L W  W W W	15 10 15 30 25 1 60 80 65  45 15 40	F t  B g h t b t t t l l } M t g t t l D b l S N t A d l l j t O l l g h t l y b d 185 l b l
D	25	SS	8 45 7 57 40 40 57 35 34 29 29 23 9 0 8 57 7 9 12 8 8 48 48	05 0 4  05 3 05 3 0 8  1 85 3  1 05 05	71 075 61 88 355 23  4 11 23 27 66 75 67 64 6 12 475 0		H H I F H H H F F H W W W W W W W	25± 10 25 10 60 30 10 3 3 60 1 5 30 25 25 20 0	O C A l t l d l d t l d f l m b C D t h d f m l m b  } M t g t t l l b t l g l t t b l t S t g C C D t l d f l b O F p m l t t h
D	26	KVS	8 45  9 40 8 35 35 80  9 30 30 80 8 59  59 59 9 20 15 10 10 0	15  05 3  05 05  05 05  05 1 1 05 05 4	71 85 55  28 33 685  75 73 71 68  655 32 65 45 15 165 51		F L H H H H W W W W  W W W W W W W	4 25 25 15 45 90  25± 30 25± 65  20± 40± 15 2 45 45 70	F t } B g l t l l l m t l l  T p b d T l b l d m t l m l g t l t - 64 L t O  O F t T p l g l t y b l d t t h l t p m O F t V y f t O h g h O V y f t D

[illegible]

D t d b	H I S I	B	L t t d		L b	H ght	R l
			N tl	S th			
100							
O t b 30 S S	9 0	6		4	H	110	A t k b h f t d t l b t L t - 10 F t l h l t f m l l t b l y b g l t C
	8 51	1		0 5	L	30	
	40	4		67	W	0	
	) 3	1		56	W	10	A y b l t t l t t l C l D l g l t l l l d b t l y t
	18	(		32	W	30	
	4	0			W	10	
	11	1	1		W	30	
	8		30		W	50 ±	A y f t l l l t t l t h l m l l y l l t k
	1		71		W	10	
	0	2	71		W		
D 31 K V S	9 )	0	73		I	20 ±	C
	) 10	1	1		I	20	S l l t l t l l C
	10		(8		I	30	C t l t l l l t l m t l t l (
	10	0	C		I	25	F l l l l l l l t l t l l C
	0	11	13		I	1	B 2 l l C
		0 5		13	I	5	
	8 10	(		18 5	I	5 ±	
		1 5		20	I	8	} O t l t t l y l g f t l l l p l l t l d t l d f l t l
	5	6		18	I	0	B h t
	0 1	1	27	70	W	30	
	3		6		W	5	
	3		167		W	20	T h l t t l
	30	6	337		W	3	A n l l j t
	2		(Jr		W	10	F t f l l l d l l C O l g l C
	0	1	71		W	L w	45 l g t ( l f t C
	0						
N mb 1 S S	8 1	0	70		I	20	
	17		40		F	20	
	12	9	1		I		M t l l
	14	1		13	I	70	b N
	29			18	I	25	S l l S l t
		17		8	F	0 ±	\ y f t
	1	1		48	F	5	
	1)	4		2	I		
	J 20	4		(	I	20	
	12	4		1	W	2	
	3			1	W	15	
	1	1		37	W	10	40 l g l C
	8	0 5	32	1	W	35	C
	5		71		W	25	
					W	20	
D 2 I V S	) 1		28		I	0	S N t
	10	4	0		H		
	10	3		1	L	50	P t f t y b g l
		1		18 5	I	40	B l h t
	0	0 5		28 5	I	20	I n t
				50	D	35	
		0 5		55 5	I	20	
	13	1		68	L	10	
	50	3		2 5	W	0	C
	45	1	9	43 5	W	P	45 h g l C
	45		11		W	20	F t C O h l O
	40	3	27 5		W	20	F t A h l k
	37		38		W	20	I t
	37		35		W	20	D
	13	1	89 5		W	50	C I t
	35		78 5		W	10	



D t d b	H IST	B	L t t d		L mb	H ght	R m k
			N th	S th			
1905	M						
N mb 3 SS	13 40	1	34		L	40	S N t
	25	4	19		D	35	
	11 40	1	7 5		E	20	
	0	2		5	E	80	
	0	1 5		9	D	20 ±	
	9 18	14		28	E	70	
	14 18	8		40	W	60	
	12	1		20	W	20	
	10	1 5		9	W	20	B ght
	9			6	W	80	A f t l d d t h d f m l m b
	18 50	1 5	12		W	75	S N t
D 4 KVS	9 22	1 5	61		D	20	S N t
	20		49		E	25	B l t t p O
	40	7	29		U	40	
		4	22		E	25	
	30	4	6 5		E	L	
	25	1		18	E	90	k h p d l w l k b ght l p f t T p
							b d d h ght 120 O
	20	2 5		28	E	100	O t d t t h l t p m t t l
	15	4		29	D	90	O t d t l t l m n C O p n
							l t d b t l f t l
	14 40			74	D	30	D t h d f m l b T l f l w b t 4
							thw d
	37			72	W	45	
	30	1 5		35	W	4	O p m 8 b d
		6		27	W	10	
D 5 SS		2		4	W	50	90 hgl O
			11 5		W	15	
	12		16		W	15	N d l k V y b ht m t l B ght
	10						p l g t t l d f th
	8 30	1	26		W	26	
			66 5		W	20	O
	9 49	2	50		E	20	S N t
	45		48		D	30	Sl htly b d t t p
	18		9		D	70	B d t t p T l k
	12	0 5	17		E	25 ±	
	10	4		11	E	40	
	8	2		17	E	30	
	8 58			68	E	40 ±	F t l l d t h d f m l m b 40 hgh
							O
	9 28	1	64 5		E	20	O
D 6 KVS	10 20	0 5	52		W	15	F k l k
	18	1 5	30 5		W	1	
	15	2		7	W		V y f t H ght 70 O
	14	2			W	20	
	12	8	22		W	25 ±	
	5	1	84		W	10	
D 7 SS	8 30		68		E	L w	80 hgh O
	30		65		L	L w	C p m 25 l gl d t t p f w b t 4
							tw d
	25	1	54 5		E	30	C p m 2 b d
		1	51 5		D	25	
		0 5	18		E	L w	B ght
	20	1 5	12		D	70	} S N t
	20	1	7 5		E	70	
				1	E	15	
	15	5		12	E	55	B ght bu t m t l h
	10			70	E	45	B d t t p
	55			69	W	60	Sl d y f a t
	50	3 5		26	W	25	
	45	0 5	12 5		W	L w	Ab t 40 hgh O
	35	8	72 5		W	45	Sl ght l t l O
D 7 SS	8 84		64		E	35	Sl t g n thw d S N t
	32	3	54 5		F	55	D bl
		1 5	49		E	80	

[illegible]

D t d b	H I S T	B	L t t u d		L m b	H g h t	R m k
			N t h	S t h			
1905	M						
N mb 16 KVS	9 15 1 12 10 4	2 1  3 3	15 27 5 73 5	26 23	W W W W	80 30 10 45 80	B g h t } O t t p S N 2
D 17 SS	9 59 5 5 7 48 18 44 12 40 10 4 23 14 20 18 18 10 5	  2 5  1 1 5 0 5 4 0 5 0 5 1 3 5 8 1 4	54 25 21       15 38 73	   5 7 14 5 35 41 72 67 50 5 28 18	E D D E F F E W W W W W W	25 ± 45 20 30 ± 25 ± 20 20 80 & 15 90 6 25 30 20 20 10 25	B d p t t b } O n t d S N t C O D bl D bl b g h t
D 18 KVS	9 48 40 38 37 35 35 32  10 17 5 3 0 9 55 51 52 0	0 5 1    0 5 6  2 1 1 1 1 5	58 5       9 18 5 31 4 5 46 5 73 5	 7 5 20 33 39 41 5 71 5  66 16   81 4 5 46 5 73 5	E E E E E D  W W W W W W W	10 180 10 25 25 ± 80 60 ± 60 30 30 15 20 20 30	F t O t h h y d g S l g h t l y b d t t p B l t t p t h t b V y f t C p m n f l y t g a n d 120 O S l d F t
U 21 SS	14 10 10 40 50 50 15 0	  2 2 2	     26	14 20 79 8 8	E L D W W W	40 20 20 15 25	S N t
D 26 KVS	12 48 48 48 14 50 45 25 12 48   14 10 7 5 3	1 5 7 2 5 4 0 5  0 5 2 1 4 0 5 2 3 1	38 24 5 18    8 14 5 31 44 5 54	   19 28 40 42 76 7 3 5  8 21 0	L E E E L E D F W W W W W W	50 30 20 40 ± 20 L w 65 15 25 25 40 25 60 25 25	O S N t C O D bl S l g h t l y t l l C O D bl 2 b d t b C
D 7 SS	11 40 40 80 10 30 30 20 18	1 2 0 5 2 1 5 1 2	73 68 5 36 30 7 21 0	       8 14 5 31 44 5 54	E E E E E E E E	20 45 60 35 ± 30 ± 60 15 15	O t t p D bl



D t d b	H IST	B	L t t d		L m b	H h t	R m k
			N t h	S t h			
1905	M						
N mb 30 KVS	9 5 15 10	1 25 05	465 70 745		W W W	20 80 25	
D mb 1 Ss	9 25 24 12 12 12 8 5 8 48 41 40 32 9 51 45 45 41 40 38 38 30 30	1 1 7 1 1 5 10 1 2 15 1 11 1 15 1 1 1	72 70 95 3 1 7 24 37 485 54 60 42 125 45 45 6 26 54 695 72	7 24 37 485 54 60 42 125 45 45 6 26 54 695 72	E E D D D E E D E D W W W W W W W W W W	80 20 80 85 25 8 25 10 0 20 40 50 40 80 8 10 65 80 60 60	U l ghtly d pl d tl w y t b t P A 97 S N t  Sl t g thw d C t d t t l m A f t h w y f l m b A b t t t h t p d t l d f m t h l w p t T p m t g l l g t L t + 57 W } M t n t t p  S N t  T p f w p l l t l m b f L t + 17 L  O p m n b t 40 h g h d m t t h t p f t h t p m } T p m t t l l t p m O } V l y m t g t h t t p } M t g t t p Sl t g thward O l ghtly d pl d t d
D 8 SS	14 80 10 40 25 15 14 20 13 57 55 54 51 51 50	05 6 1 35 05 2 8 05 05 15	51 31 4 325 58 79 37 25 19 14 10		E E E F E W W W W W W	40 40 15 35 80 40 25 80 20 20 25	
D 4 KVS	8 40 35 35 32 32 8 40 9 20 20 20 15 10 5 8 0 8 45 45	15 2 1 15 2 15 2 05 05 4 05 1 1 3 05	70 48 445 315 275 19 13 795 755 715 605 24 135 135 10 55 205 71 785		E E E E E F L W W W W W W W W W W W W	20 45 85 10 15 20 20 25 20 10 60 20 40 20 30 80 35 40	
D 5 SS	8 40 40 31 27 4 15 15 5 15 1 10	8 8 3 2 2 05 05 1 05 1 1	715 695 505 45 10 325 35 39 405 605 65		E E F D D E E E E E E	85 85 2 30 50 20 15 15 15 15 15 20	

D t e d b	H I S T	B	L t t d		L m b	H h t	R m k
			N t h	S t h			
1905	M						
D m b 5 S S	8 8	0 5		73	E	20	F t
	9 26			82	W	30	
	24	1		73 5	W	35	Slightly b d t t l
	18	0 5		33	W	20	
	15	4 5		25	W	8	
	14	0 5		20 5	W	15	B ght
	8			18	W	60 ±	S N t
	8			15 5	W	75	A l d l t g t l m w h t b l O
	1			7	W	65	b t t t h y d g
	8 58	2		2	W	15	H k l k t t p
	50	3 5	20		W	70	
	45	1	73		W	40	O p m s b d t b d 6 h g h
D 6 K V S	8 30	0 5	53 5		E	30	
	30		0 5		L	15	C p m l b d n d b t 25 h g h
	30		40 5		F	15	
	25	0 5	30 5		F	40	S N t l
	41		14		E	30	O A l d l t d t l d f l m b
	20	6	1 5		E	20 & 10	A l w b n k
	17	3		26 5	E	1	
	15	1		43 5	E	20	D b l
	41			64	E	10	O r t
				81	W	25	r t
	9 10	1 5		71	W	8	
		1		20 5	W	15	{ A t k b t l l g l l l
	5	1 5		28	W	15	} t l m b t h t l f t h t w
		1 5		25	W	10	
	0	1		74 5	W	50	S V t
	8 55	4		2	W	1	
	50	2	36		W	45	
	40	3	71 5		W	40	r n t h l l l h t y t l l O
D 7 S S	9 0	1	51		E	30	
	8 55	1 5	24		E	30	S N t l
	48		20		E	20	Slightly l d t t l
	9 14		8		E	0	O S l t f I t - 3 E t
	8 40			13 5	E	100	S N t 2
	3	10		20	E	25 ±	S N t 3
	27	3		41 5	E	40	
	20	1		60	E	20	D b l
	20	0 5		62	E	15	A d t h d f t l l m l l t f t k
							t L t - 6 L t
	9 11	0 5		80	W	10	
	38	2 5		72	W	50	D b l
	3	1		38 5	W	30	V y i n t
	33	0 5		3	W	10	B g l t
	32	3 5		30	W	25	D
	31	1		20	W	25	r t
	0	0 5		16	W	20	
	28			11	W	40	r t S l d d t h l f m l m b
	8			9	W	50	Slightly b d l h g l O
	25	1	19		W	20	
	20	3	35 5		W	70	
	20		38		W	70	B d t t p
	10		71		W	60 ±	D b l B l l t b
		3	76 5		W	50 ±	r n t O p m l f t b t 7 b d
							d o h g h
D 8 K V S	9 30	1	67 5		F	25	V y f t
	30	0 5	46		E	25	D
	8 45	2	52		E	35	
	42	0 5	34		E	20	
	40	1 5	26		E	60	B b l y t h g } O t l t h t h
							l m b t t p b y d t k
							t 10 h 5 m
	25		9		E	10	
	20	2		2	E	20	
	10 2	1		64 5	E	15 ±	F n t
	0	4 5		71	W	60	
	9 55	2		82	W	50	A t m b t 4 l g f l w d w t w d from
							t t p t 10 h 25 m

D t d b	H ur IST	B	L t t d		L mb	H ght	R mark
			N th	S th			
1905	H M						
D mb 8 KVS	9 55			285	W	10	
	48	1	105	12	W	20	
	44		30		W	25	
	42	5	375		W	25	
	10 16	05	74		W	40 ±	
						0	
D SS	8 59	5	77		E	25	A hlk B b ght
	54	4	54		E	30	
	51	15	41		E	20	
	49	05	40		E	15	
	45	05	32		E	80	Sl t g thw d
	38	0	23		E	30	M t l l
	3	4	8		E	30	
		1	1		F	20	
	8	4		7	E	2	
	12	05		71	D	15	
	9 49	4		71	W	45	
	49			69	W	45	} M t g t t p
	14	3	365		W	45	D bl } t p n t d O
	41	25		80	W	20	B l t }
	40	2		19	W	25	B ght
	38			17	W	80	B d t t l
	45	2		16	W	60 ±	C
	32	05		18	W	3	T p m t t h l t O p m
	29	15		8	W	2	O t d t t h l t p m
							} M t l l f u d
	6	15	4		W	20	t b p l y
							f h g
							f m t h O
							ph t g phs
		05	15		W	20	
	23	05			W	20	
	23	6	9		W	20	
	18	1	15		W	3	Slightly b d t t p
	14	1	345		W	20	
	10	15	40		W	35	
	3	1	83		W	50 ±	R t
							V y f t
D 10 KVS	9 12	05	395		D	10	
	12	15	65		E	10	
	10	2	55		D	15	
	7		425		F	2	R t
	8 29		38		D	25 ±	2 b d t b C
	29		97		D	25 ±	O D t h d f m l m b
	29		35		l	20 ±	O
	9 5	1	90		D	35	B d t t p
	0	2	35		E	65	
	0	15	20		E	65	} O t d t t p
	8 50	05	85		E	60	B d t t p } O t d
	50		35		E	50	t b
	40	05		45	E	30	
	40	05		8	D	20	
	40	1		11	E	30	
	35			37	E	20	
	45	5	715		W	90	R t M t O
	40	05	395		W	30 ±	V y f t
	37		34		W	15	Sl l
	35	1	20		W	40	Slightly b d t t p
	32		135		W	20	A l d l t d t h d f m l m b
	30	05	7		W	15	
	30	15	11		W	25	
	25	2	5		W	25	
	25	3	195		W	25	} O n n t d b y t k t t p
	25		235		W	90	
	15	2	42		W	90	F t t t p N t f l O p h t g r p h
D SS	8 46	05	87		E	10	
	44	05	84		E	10	
	40	1	42		D	15	
	38	05	30		F	60	B d d f l k t t p
	38	05	27		E	55	B d t t p

D t and b	H I S T	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1905	M						
D mb 11 SS	8 35 32 30 25 20 20 20 1 0 7 28 18 16 14 14 11 11 11 8 5 0 2 8 56	4 5 0 5 7 0 5 0 5 0 5 0 5 0 5 9 0 5 1 2 2 8 1 0 5 1 0 5	21 12 5 7 9 5 80 32 91 68 82 72 5 20 9 5 10 7 3 0 21 35 41 50 69		E F D E E D D D L W W W W W W W W W W W W	55 20 20 70 10 10 10 15 15 40 15 30 40 40 20 20 20 35 20 30 10	Sl t g thw l Mg l y b g l t t b  F t Slightly b l t t p } O t d t b  Slightly b d t t p B b h t Sl t g w t w d B b h t
D 12 KVS	8 45 45 40 9 6 3 1 8 55	1 5 2 0 5 1 5 0 5 0 5 3	33 17 5 8 88 5 71 22 9 42		D E D W W W W W	30 ± 1 2 ± 25 ± 2 ± 25 ± 30 ± 40 ±	F t S N t B g l t l d t l l V y f n t F t B g h t Th l t th
D 18 SS	8 49 48 46 44 40 39 35 9 8 4 8 6	0 5 0 5 2 3 0 5 0 5 3 2 0 5	37 26 14 8 2 5 22 2 26 74 41		L F F D F D D W W W W	20 10 15 10 15 25 45 35 25 ± 2	B g l t M t l l B g l t  S N t
D 14 KVS	9 18 0 8 50 1 42 40 37 35 9 18 8 80 9 40  18 5 25 20 15 10 5	0 5 1 1 5 4 1 0 5 1 5 3 0 5 2  1 2 1 0 5	72 67 52 5 30 5 28 23 4 5 5 14 21 40 72 79 5 88 77 68 52 27 5 23 23 72 81		D I F F F D E E D D E W W W W W W W W W W	35 L w 25 20 1 40 20 30 30 35 65 30 20 ± 10 35 ± 60 25 30 30 60	O B g h t O p m 45 l g l  A h t f t t m f l w t w d f m t h t p A h l k F t T p f t d f w thw d b t 2 F t B g h t O V y f t F t O D t h d f m l m b B g h t A b g h t A d t h d f m l m b n t d t t h l m b C



D t d b	H m r I S T	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1905	H M						
D mb 15 SS	8 25 20 16 13 5 9 3 8 57 55 45 41 38 33 29	05 3 4 1 05 6 75 05 05 1	70 28      4 24 33 45 68	88 40 645 885 69 55	L E E D E E W W W W W W	10 20 10 30 10 25 15 35 45 15 30± 35 30	Γ t S l p m l t n th V j f t S l t g thw d D bl B g h t t t l
D 16 KVS	9 30 25 22 1 10 5 3 9 58 58 10 5 0 9 40 40	05 16 15 1  1 05 15 35	205     1 25 25 32 41 435	18 39 865 82 38  W W W W W W	E L D E W W W W W W	10 40 15 25 10 10 20 20 30 35 25 0	S l g h t l y b d t t p
D 17 SS	8 48 45 35  29 25 9 25 21 18 14 8  2 8 57	1 05 19  05 1 1 05 7  48 1 57	20 15   435 84 855 59 38 16  285 48 57	75    435 84 855 59 38 16  285 48 57	D E E  E E W W W W W W W W	20 50 120 & 90 10 40 15 20 45 40 25 80 10	T l k Γ f t p m f y g h g l t l l l t g l d d n t d t th B d t t p B d t t p A g l h B g h t m t l l - b l b b g l t A l d b t d l g d t h d f m l m b n l p l l t t D bl B g h t l Th l t t l S l d C l S l d D bl Γ t D bl A l g S N t A f t l t g F t F t S l t g thw d D
D 18 KVS	8 55 55 50 45 3 35 9 16 15 15 12 10 5 0	2 2 2  15 1 1 1 12 1 05 1	23 21     55 15 415 57 745	7 885 80 815 615 185 145	E D D D D W W W W W W W W	35 30 15 1 15 35 10 20 25 0 25 35 15 30	
D 19 SS	9 41 37 38 35 3 25 10 20 15 10 9 6 8	05 3 1 15 1 1 05 1 1 1 1	24           1	4 105 18 31 78 86 61 27 23 2	D E D E E E W W W W W W	20 15 20 0 25 80 15 30± 15 25 20 20	

D t d b	H I S T	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1905	M						
D mb 19 SS	10 3 9 58 58 51	3 05 1	7 49 52 7		W W W W	20 3 35 30	B l t t p A f t
D 20 KVS	9 20 10 50 8 53 45 58 58 11 5 5 0 0 0 10 58 55	1 1 05 1 05 15 05 4 2 2 30 25 1	7 21 125 24 23 30 53 71	8 765 C1 58 27 20	E E D D W W W W W W W W	40± 15 20 40 60± 30 2 25 25± 15 15 15 30 3±	S N t B d t p O C F t C F t F t D
D 21 SS	9 8 7 51 40 38 36 9 48 48 33 27 25 22 1	4 4 7 4 05 05 2 2 1 1 1 1	77 18 325 (4 77 86 71 8 28 20 33 37 675		F F I D F D W W W W W W W	30 2 2 60 20 0 25 50 3 30 30 30 30	F t F t Tw l t g d t t t p Slightly b l t t l T l 2 b l t h b d t l t d l l t 70 l g h Upp p t b t l l i l m t l t h d f m t l l w t l l t b g l t S l t g t h w l } C t d t t l B d t t p D
D 22 KVS		35 05 1 8 40 9 20 15 05 1 13 10 0	70 3 205 35 715 72 575 20 4 14 20 3 70		F E E E l W W W W W W W W	50± 10 20 15 60 20 35 10 15 0 10 80 55 2	F t F l t l 60 l g l C D b l F l t t l l b g t L t - 17 D T p f F t
D 23 KVS	9 5 8 55 50 45 45 35 9 50 45 37 30 28 25 25 20 10	1 05 1 1 15 15 05 1 05 6 05	755 285 19 485 48 72 77 59 33 15 75 20 23 355 685		E L E D E W W W W W W W W W W	0 25 20 25 10 90 25 60 15 25 30 40 35 30 20	(0 h g h O Th t l t l t l t t l w d S l d l g t B l t t l O p 2 b l
D 24 KVS	9 22 20 15 13 12		775 395 285 245 205		E E E E E	25 20 80 15 10	A l d t m b t 6 l g f w t h w d f m t h m d d l f t

D t n d b	H I S T	B	L t t u d		L n b	H h t	R m k
			N t l	S t h			
180							
D mb 24 KVS	9 10 10 8 55  50  40 35 9 48 45 45 45 38 38 3 30 25	2 1 8   1 5 0 5 1 5 4 1 5 3 2 1 5	14 11 5    19 23 5 29 38 39	21  43 47 49 5 72 79 5 81 5 87 5 84 9 5	D E D  D D D W W W W W W W W	25 20 50  90 45 45 90 25 35 ± 1 10 25 5 45 30 40 25	A l g t g l h t t d t th lmb by th h t t m A b d f t h t l t t d t th lmb by l d t k Slightly b d t t p  D bl F t  O t d t th l t p m n Slightly b d t t l
D 25 KVS	9 37 33  25 1  10 5 5 8 50 10 2 0  9 53  50 4 45	6   2 5 3 3 5 1 1 5 2 1 5 0 5 0 5 4 1 5 1  4 30 47 5 52	43 30 5  16   9 5 14 21 5 42 47 48 5 71 5 76 5 77 9 5 4 18 4 5 30 47 5 52	9 5 14 21 5 42 47 48 5 71 5 76 5 77 9 5 4 18 4 5 30 47 5 52	F E  E E E E E E E W W W W W W W W W W	60 85  25 30 25 5 90 45 25 ± 60 35 ± 10 10 12 25 30 10 1	2 b d t b C Slightly b d t t l A l t t m f w tw d f m t l m d l f t  N t F t  Slightly b d t t p T p b t 4 b d F t  A m l l l w y f m lmb D bl S l d
D 26 KVS	10 15 7 5 10 0 0 0 23 28 11 27 20 20	8 0 5 5 0 5    1 1 0 5 9 5 12 5	44 5 32  6 22 5 45 48 49 73 76 5 81 5 9 5 12 5	32  6 22 5 45 48 49 73 76 5 81 5 9 5 12 5	D E D D E L E E E D W W W	30 ± 25 ± L w 2 30 ± 30 ± 30 ± 30 ± 30 ± 30 ± 25 10 15	S N t B ght m t l l B ght      B d t t p
D 27 KVS	16 15 11 7 11 0 10 52 52  16 0 11 7 15 56 50 45 45 11 5	1 5 2 1 6   1 1 0 5 1 5 1 0 5	75 39 5 28 5    86 5 88 86 5 22 2 0 13 27	1 22 28    86 5 88 86 5 22 2 0 13 27	E E E D E E E E D W W W W W W W W	35 ± 20 15 10 45 20 ± 30 ± 10 10 20 55 40 ± 30 10	F nt S N t    A h l k C n n t d t th l t p m nce t t d F t D bl Slightly b d t t p  B ght m t l l

D t d b	H I S T	B	L t t u d		L m b	H g h t	R m k
			N t h	S t h			
1905							
D mb 27	11 3		805		W	25	Th w l b d th ft n l n t d t th t p f t l l t p n
	15 40	05	465		W	30	
	40	05	18		W	30	
	37	05	67		W	25	
	10 58	0	705		W	16	80 h g l t 15h 30m
D 28 SS	10 0	15	78		D	35	Slightly t H O
	5	05	75		E	20	
	53	1	735		D	20	O
	9 8	8	17		T	10 & 20	
	0	8	395		E	25	
	54	05	29		D	2	
	8	1	24		D	25	B ght
	50	05		2	E	25	
	45	105		22	D	35	S N t
	42	3		305	T	20	
	10	05		61	D	25	F t
	35	3		87	W	50	
	10 28	1		245	W	20	
	26	8		35	W	40	
	25		3		W	20	
	23	4	14		W	10	
	22	05	20		W	1	B ght
	20	05	255		W	0	
	18		94		W	25	T i f l w g n thw d
	10		11		W	15	
	15	15	54		W	10	T t
	18		655		W	20	30 h g l O
	11		76		W	40	
	9		805		W	20	T p l w g thw l
D 29 SS	11 42	2		18	E	25	S N t
D 30 SS	8 4	1	235		E	15	
	10	15	18		E	30	
	35	05	45		E	20	Slightly b d t t p
	32	6		19	F	10	
	30	05		25	E	25	B ght
	25	1		645	E	10	
	9 6			75	W	60 ±	F t l d t l 50 h g h O
	8 19	15		425	W	15	
	13	1		24	W	00	
	9 2	05	7		W	15	
	0	5	195		W	15	
	8 55	05	70		W	40	
	55		785		W	40	Sl t g t w d ndm t g th t p f t h l t p m
D 31 SS	9 50		2		E	20	A h t t k d t l d f m l m b n d p l l t t S N t
	44	1	15		D	1	B ght } Sl t g t w d h t l d m t g t t p
	44	1	105		F	15	
	36	45		88	E	40 ±	
	10 30	05		81	E	10	
	26	1		28	W	20	
	24	15		8	W	25	
		05		45	W	10	
	20	5	205		W	30	A b d b ght
	28	05	82		W	40	C F n t } Sl n t g t w d h t l n d O F t } m t g t t p
	28	05	85		W	40	

## ABSTRACT FOR 1905

1905	f d y t n	f p	f h	g h t	F q h h m p h		M n h l l t t d s i h	
	N m b f b	N m b m n n	M n d l y q u y	M n h g h t	N t h	S t h	N t h	S t h
J n y	28	405	14 5	28 4	71	73	37 5	38 1
F b y	27	415	15 4	32 7	80	74	38 5	38 6
M h	30	498	16 6	35 7	78	88	35 0	40 4
A p l	26	486	15 7	29 9	92	95	37 3	40 6
M y	27	4 5	17 6	30 4	87	89	37 2	41 3
J n	22	294	13 4	31 2	60	73	35 8	37 3
July	25	323	12 9	32 1	68	61	36 2	38 9
A g u t	26	388	14 9	31 8	83	67	36 7	38 3
S e t n b	22	308	13 8	31 2	68	70	40 3	37 3
O t b	23	390	17 0	32 8	91	78	38 7	40 7
N m b	19	284	11 9	32 2	72	77	37 5	34 0
D b	30	496	16 5	29 4	82	84	37 1	38 5
F t q t	85	1318	1 5	32 3	76	79	36 9	38 0
S d q t	75	1255	16 7	30 4	81	86	36 9	40 0
T h l q t	73	1014	13 9	31 7	73	65	37 0	36 7
F u t l q t	72	1170	16 2	31 1	82	80	37 7	38 0
F t h l f y	160	2573	16 1	31 3	79	82	36 9	3 0
S d h l f y	145	2184	15 1	31 4	78	73	37 6	37 4
Y 1905	305	477	15 7	31 4	78	78	37 3	38 3

H l g r p l l t t d f p m 1905		N u b f p m b d 1905						M n d l y i q n y
		T t q t	S d q t	T h d q t	F t h q t	T t h l f y	S l l f y	
N t h	90 t 81		14	11	12	18	23	0134
	80 t 71	24	30	40	73	54	122	0 77
	70 t 61	108	100	78	61	208	139	1138
	60 t 51	61	43	34	40	104	74	0 81
	50 t 41	100	61	57	62	164	119	0 928
	40 t 31	58	32	70	71	138	141	0 915
	30 t 1	108	93	78	92	201	165	1 200
	20 t 11	102	90	76	92	192	168	1 180
	0 t 1	80	89	85	88	169	173	1 12
	0	6	3	6	3	9	9	0 059
S t h	1 t 10	98	66	68	91	164	169	1 059
	11 t 20	96	88	71	83	184	154	1 108
	21 t 30	94	101	71	9	195	163	1 174
	31 t 40	87	95	64	68	182	132	1 080
	41 t 50	73	70	73	53	143	126	0 882
	51 t 60	57	43	23	31	100	54	0 50
	6 t 70	111	123	74	72	234	146	1 246
	71 t 80	83	36	23	67	69	90	0 521
	81 t 90	19	26	8	19	45	27	0 236

## NOTES

1905

- July 2 Lat + 15 W C and F displaced both ways amount in F 2 A to red and 1 A to violet  
Na Fe and  $M_{\text{g}}$  lines bright
- 4 Lat + 12 W Detached from limb A curved streak proceeding from the middle of it  
meets limb at Lat + 16 W
- 10 Weather bad for prominence observations But there was apparently a prominence at about  
Lat + 10  $\square$  on a Ca focculi photograph
- 13 Very bright sky
- 15 The six prominences marked in the list were enclosed by a Ca prominence 60 high and  
extending from Lat - 13 W to + 5 W
- 17 Lat - 12 W Very disturbed C displaced to red amount in F about 1 A in the whole  
prominence and 2 A at Lat - 12 W Displacement curiously shaped  $D_{\text{a}}$  slightly  
displaced both ways 9<sup>h</sup> 45<sup>m</sup>  
Displacement in F 2.5 A at Lat - 13 W and 1 A at - 10 W at 9<sup>h</sup> 02<sup>m</sup> Weather bad  
for examining prominence spectrum
- 27 Only half the limb was examined on account of bad weather The photograph was poor but  
there were probably no other important prominences than those entered here
- 28 Poor sky except at brief intervals
- 30 Very poor weather
- 31 Poor weather

- August 3 The whole of the observations were made through clouds Shapes and sizes approximate
- 6 Lat + 20 W Very bright metallic C displaced both ways at base - 2 A to violet and  
1 A to red in F
- 10 Sky very bright Only a part of the limb was observed and even that through clouds
- 11 Lat + 33 E Top flows eastwards in three long streamers the lowest one being the longest  
and going up to Lat + 14  $\square$  C displaced (2 A in F) to violet at Lat + 17  $\square$  for  
a short time
- 13 Bright sky
- 15 Note 1 - Lat + 6  $\square$  The Ca prominence extends from near the equator to about Lat  
+ 30  $\square$  where it does not quite touch the limb but is 210 high  
Note 2 - Lat + 2 W Base about 6 broad but detached from limb Ca prominence  
almost continuous from Lat - 11 W to + 4 W and quite different in form from the  
hydrogen prominence and 150 high
- 19 Weather bad
- 20 Lat + 21 W Intensely bright Rapidly changing Bright lines - 6678 2 D D  
3168 b b  $b_{\text{a}}$  5018 7 (violet side) 5016 3 and 4924 2
- 21 Lat + 12 W Very bright Was in the same position as the disappearing spot No 623  
Bright lines - D D  $D_{\text{a}}$  5316 9 5276 3 5234 9 5197 4 b b 5169 2 5018 7 5016 3  
and 4924 1  
The prominence was hardly visible in Ca
- 24 Weather bad
- 26 Only the S E limb was observed in hydrogen on account of bad weather
- 29 Note 1 - Bright sky Heights approximate  
Note 2 - Lat - 1 E Arch like in Ca the other end meeting limb at Lat - 16 E  
height of arch 60

- September 4 Bright sky
- 12 No visual observations on account of bad weather
- 14 Only the eastern hemisphere was observed and even that through clouds
- 16 Cloudy except for a very short interval
- 23 Observed through clouds Forms and heights approximate
- 24 Do do

1905

- September 27 Lat + 23 E C displaced about 0.5 A both ways at 9<sup>h</sup> 35<sup>m</sup>  
 Displacement to violet increased to 1 A at 9<sup>h</sup> 40<sup>m</sup>  
 A similar displacement on the same side at another place at 9<sup>h</sup> 50<sup>m</sup>  
 Na Mg and Fe lines strong
- 29 Note 1—Lat -12 D An irregular cone about 6 at bottom detached from limb  
 Ca prominence different in form and 50 high  
 Note 2—Lat + 73.5 W Faint Ca prominence 65 high and extending to Lat + 60 W  
 with heights ranging between 20 and 40
- October 3 The eastern hemisphere only was examined and even that in poor weather
- 10 Observations were made through clouds Heights could not be determined
- 11 The eastern hemisphere was examined in poor weather western hemisphere not at all
- 16 Lat -61 W Very faint Ca prominence also faint but 95 high with the top flowing  
 both ways and forming an arch 16 broad
- 17 Note 1—Only a part of the limb was examined in hydrogen and even that through clouds  
 Note 2—Lat -35 E Top broad and meets limb again at Lat -1 D The top of the  
 Ca prominence meets limb at Lat -41 D also
- 18 Lat + 83 E At 10<sup>h</sup> 25<sup>m</sup> top met limb again at Lat + 25 D Ca prominence arch like  
 and 85 high
- 19 Only a part of the limb was examined and even that through clouds
- 20 Lat + 15 F Very bright Rapidly changing Sketches made at 9<sup>h</sup> 19 10<sup>h</sup> 15<sup>m</sup> and  
 10<sup>h</sup> 40 quite different from one another Hydrogen lines were displaced both ways in  
 the whole prominence—greatest amount being 1.5 A to red and 2 A to violet in D<sub>3</sub> was  
 displaced about 0.5 A to violet No metallic lines
- 21 Lat -21 W More continuous in Ca Top meets limb again at Lat -29 W It is also  
 connected to the last prominence in Ca
- 22 Lat + 17 D A low bank with a straight vertical streak at Lat + 17 D 40 high and  
 detached from the main prominence
- 24 Lat -07.5 E Faint Height about 30 at 11<sup>h</sup> 10<sup>m</sup> Ca prominence extends from Lat  
 -65 D to -71 D and is 90 high
- 27 Note 1—Lat + 10 E C and F displaced both ways (0.5 A in F) in the chromosphere No  
 prominence in that position  
 Note 2—Lat -69 F Extremely faint Height more than 60 Ca prominence 21 broader  
 and 65 high and also very faint  
 Note 3—Lat + 25 W A slanting streak about 25 high separated from the limb by  
 about 60 but connected to the last two prominences in Ca
- 28 Lat -3.5 D Top faint in hydrogen and not visible in Ca Connected in Ca to the top  
 of the last prominence by a streak about 10 long
- 30 Lat + 4 E Top broad and meets the last prominence A streak proceeding from the top  
 and 60 high meets limb at Lat + 16 E in Ca
- November 1 Lat -13 E A streamer flows southwards from the top Another short one flows eastwards  
 in Ca
- 2 A part of the limb was not observed owing to bad weather
- 3 Note 1—Observations were made during breaks in clouds  
 Note 2—Lat + 12 W Changing rapidly C and D<sub>3</sub> slightly displaced to red Base  
 almost detached from limb and extending to Lat + 6 W at 14<sup>h</sup> 5<sup>m</sup>
- 4 Cloudy with breaks
- 5 Observed mostly in poor sky
- 6 The prominences at Lat + 12 and + 7.5 E were both faint with bases however very bright  
 Both were rapidly changing The Ca photographs taken at 9<sup>h</sup> 54<sup>m</sup> and 14<sup>h</sup> 05<sup>m</sup> differed  
 very much from each other and from the sketch made at 8<sup>h</sup> 20<sup>m</sup> Hydrogen and helium  
 lines were displaced both ways at base—0.8 A in F at 8<sup>h</sup> 20<sup>m</sup> At 9<sup>h</sup> 45<sup>m</sup> F was displaced  
 4 A to red and 1 A to violet at the base at Lat + 8 E 6678 2 D D b b b<sub>3</sub> b<sub>4</sub> and  
 5316 8 were bright at that position At 10<sup>h</sup> 20<sup>m</sup> F was displaced 1 A both ways at the base  
 at Lat + 12 E At 10<sup>h</sup> 40<sup>m</sup> there were three points very bright near Lat + 12 E
- 7 Passing clouds

1905

- November 9 Poor weather The limb was not examined between p a 180 and 300  
 10 Weather bad  
 11 Lat  $-1^{\circ} 5' W$  Rapidly changing Very bright Metallic 53170 2763 D D b b  
 $b_3$   $b_4$  bright  
 16 Note 1—Lat  $+20^{\circ} E$  A cloudlet connected to the limb at Lat  $+23^{\circ} E$  Ca prominence  
 broader both at base and top  
 Note 2—Lat  $+27^{\circ} 5' W$  Very bright Metallic  $\Gamma$  displaced about 0.8 A both ways  
 $D_3$  also slightly displaced  
 17 Lat  $-2^{\circ} 5' E$  The eastern end of the top meets limb again at Lat  $+4^{\circ} E$  Western end of  
 it flows on about 7 southwards that portion being broader and 120 high in Ca  
 21 Observed in very bad sky  
 26 Only about three fourths of the limb was observed and that through clouds
- December 1 Lat  $+3^{\circ} E$  Changing rapidly Metallic C  $D_3$  and  $\Gamma$  displaced to violet amount in F  
 about 5 A  
 3 Cloudy with breaks p a 280 to p a 50 was not examined  
 5 Lat  $-18^{\circ} W$  A long faint slanting stream detached from limb and extending from near the  
 top of the last prominence to Lat  $-17^{\circ} W$   
 6 Note 1—Lat  $+30^{\circ} 5' E$  Two bright elongated clouds run eastwards for about 6 parallel to  
 limb and are connected to limb only at a point at Lat  $+30^{\circ} E$   
 Note 2—Lat  $-14^{\circ} 5' W$  Top meets limb again at lat  $-17^{\circ} 5' W$  Very bright Rapidly  
 changing Metallic D D b b  $b_3$   $b_4$  bright  $\Gamma$  displaced to violet by 2.5 A  
 7 Note 1—Lat  $+24^{\circ} E$  A long cloud 70 high proceeding from its top meets the limb at  
 Lat  $+21^{\circ} E$  and extends to Lat  $+3^{\circ} E$  on the other side of the prominence It quite  
 meets the limb at Lat  $+12^{\circ} E$  in Ca Ca extension faint  
 Note 2—Lat  $-13^{\circ} 5' E$  A long cloud over the top of this prominence It extends from  
 Lat  $-8^{\circ} E$  where it is 0 high to Lat  $-17^{\circ} E$  where it is 100 high It is connected  
 to the limb in Ca by a stream broad at Lat  $-13^{\circ} 5' E$   
 Note 3—Lat  $-10^{\circ} E$  Metallic Na Fe Mg lines strong Seeing soon became too  
 bad for the observation of other lines C was slightly displaced both ways  
 12 Poor sky  
 13 Lat  $+44^{\circ} W$  There seemed to be a moderate sized prominence in this position but the  
 form and height were not determinable Seeing bad  
 19 Poor sky  
 20 Poor sky Forms and heights approximate  
 25 Lat  $-9^{\circ} E$  A low bright arch with a bright vertical stream at the eastern end Disruptive  
 $\Gamma$  displaced 1.5 A to violet and 1 A to red  
 26 The whole limb was examined in very poor sky Forms and heights approximate  
 27 Observed in very poor sky from 10<sup>h</sup> 0<sup>m</sup> to 11<sup>h</sup> 10<sup>m</sup> forms and heights approximate  
 Observed again between 15<sup>h</sup> 30<sup>m</sup> and 16<sup>h</sup> 20<sup>m</sup> in a fine sky  
 28 Lat  $-22^{\circ} E$  An irregular cone and an irregular rectangular prominence slanting towards  
 each other and meeting at top  
 29 The whole limb was examined but only one prominence could be seen Seeing very bad  
 31 Seeing poor

C MICHIE SMITH

22nd August 1906

Director Kolarikal and Madras Observatories





# Kodatkana! Observatory.

BULLETIN No VIII

## WIDENED LINES IN SUNSPOT SPECTRA

No 739 A (Gr 5775 )

LAT + 7

LONG 104

CLASS—IVa IVb

Date—1906 January 9—19

W	l	gth	M	N	ml	f
			w	b	t	
4862 029			8		3	
4862 783					1	
4864 919			9		7	
487 071			7		5	
4885 264			6		4	
491 411			7		4	
4928 11			6		2	
4965 107			6		1	
001 165			8		2	
5009 829			7		7	
5013 479			7		3	
5016 840			8		4	
023 0 2			8		0	
5025 716			7		1	
5013 761			5		1	
5045 58			7		5	
5066 174			9		6	
5077 502			8		1	
5085 668			7		1	
5087 239			6		2	
5130 543			0		1	
5134 697			6		2	
5136 270					3	
5147 8			9		6	
51 0 363			8		6	
5219 87			7		7	
225 695			8		0	
5300 578			8		1	
5300 920			8		1	
5369 041 ?			8		1	
5369 125 ?			8		1	
5426 471			9		7	
5430 572			8		0	
5490 307			7			
5490 905			7		2	
5 27 859			7		7	
5671 071			8		7	
567 047			8		7	

W	l	gth	M	N	mb	f
			w	b	t	
5703 797			8		2	
5707 204			8		3	
5727 873			7		3	
731 437					3	
5737 288			)			
5743 045			9		0	
5866 675			7		1	
Ob	—SS	1 GN				

No 745 A (Gr 5785 )

LAT — 13

LONG 332

CLASS—I IIc III, IIa

Date—1906 January 3—28

W	l	gth	M	N	mb	f
			w	b	t	
4963 833			3		1	
4861 919			)		3	
4875 071			8		2	
188 04			(			
4965 107			7		3	
5009 8 )			8		(	
5013 179			7		1	
5028 05			4		3	
5013 761			5		3	
5015 682			6		4	
053 0 6			5		2	
5066 174			7		(	
5085 341						
5087 239			0			
5134 637					1	
5136 270			6		2	
5139 037						
5140 553					1	
5140 034					1	
5141 497			7		1	
5143 901					3	
5147 052			8		0	
5149 013			7		1	
5150 303			7		(	
5156 823			4		1	

W l tl	M w d g	N mb b t f
5160 419	4	1
163 200	4	1
5219 875	8	5
522 695	7	2
5238 742	6	3
5260 561		1
5300 929		1
5304 355	5	2
26 474	9	6
5400 5 2	8	6
547 01	5	1
490 367	7	6
5490 905	5	2
5627 8 9	6	5
56 1 071	7	6
5672 047	7	6
5 03 797		1
5707 204		1
572 873	7	4
5731 137	7	4
573 288	9	6
743 645	8	5
5860 6		1
5867 785	5	1
6039 958	6	2
6063 080	6	2
6199 398	7	1
6243 320	9	2
6 93 170	7	2
6806 024	8	2
6573 030	7	1
Ob	-SS	1 GN

## No 750 (Gr 5791)

LAT + 18

LONG 233

CLASS—V III<sub>A</sub> I

Date—1906 January 9—February 4

W l gth	M w d g	N mb b t f
4864 919	8	4
4875 6 1	7	3
4885 2 4	7	1
4915 414	7	1
4928 511	7	4
4965 107	7	3
5001 185	8	3
5009 829	7	7
5013 479	8	
016 40	7	2
5020 208	6	1
50 3 052	8	4
5045 582	6	6
5053 056	5	4

W l th	M w d ing	N mb b rv t f
5066 174	8	7
087 239	6	4
5130 543	8	1
5136 270	8	1
5148 901	6	3
5147 652	8	7
5150 363	7	5
52 9 87	7	7
5225 695	8	4
5238 742	6	3
5300 578	6	1
5300 929	8	1
5304 355	6	2
5407 587	8	1
407 688	8	1
5120 510	8	2
5420 613	8	1
5426 474	8	7
5460 572	7	7
5490 367	7	6
5627 850	7	6
5671 071	8	7
572 047	8	7
5703 797	8	3
5707 204	8	3
5727 873	7	3
5 31 437	7	3
5737 288	9	7
5 43 645	10	4
6039 958	6	1
6063 080	6	1
6243 3 0	9	1
6293 170	7	1
6306 024	8	1
6573 030	8	1
Ob	SS	d GN

## No 755 (Gr 5798)

LAT + 9

LONG 107

CLASS—IV<sub>a</sub> IV<sub>b</sub> IV<sub>c</sub> I

Date—1906 Februa y 6—12

W l gth	M d g	N mb b t f
4802 029	8	1
4862 783	7	1
863 833	7	1
4864 919	8	4
4868 1 1	7	1
4875 671	7	3
4885 264	7	2
4913 803	6	1
4928 511	7	2
4965 107	7	5

W l gth	M n g	N mb t f
1977 833		1
5001 175	9	3
5009 8 9	7	7
501 179	7	2
5016 340	6	3
5023 05	8	3
5043 761	6	2
5045 582	6	7
5053 0 6	6	2
5066 174	8	7
5070 165	8	1
5087 233	7	5
5130 513	7	1
5134 69	6	3
5136 270	8	2
5143 101	6	5
147 652	7	7
5150 863	7	7
51 C 823	5	3
5201 280		1
219 875	7	7
5225 695	7	3
5 38 712	6	3
260 (1	5	2
5300 9 9	8	2
5304 355	5	3
3J9 675	5	2
5420 510	8	1
54 0 f13	8	1
5420 174	9	7
400 572	8	6
5477 101		1
110 367	7	6
5110 10	7	1
5 38 02	5	
(27 853	7	7
5071 071	8	7
567 017	8	7
703 717	7	
5707 204	7	4
5727 873	7	6
731 137		6
87 288	8	7
713 64	10	4
807 785	6	1
100 200	5	1
5103 748	5	1
5918 635	6	1
5918 78	7	2
5923 86	6	2
5966 055	7	1
178 768	7	1
6038 953		2
6063 080	7	2
6081 605	6	2
6085 470	4	1
6090 429	6	2
6113 740	6	2

W l gth	M n g	N mb t f
6126 435	4	2
6198 3 8	3	1
6210 895	6	1
6216 567	5	2
6230 312	3	1
6240 863	4	1
6243 320	8	2
6258 92	4	1
6261 316	4	1
6274 870	6	2
6280 598	4	1
833		
6285 384	5	1
6298 170	8	
6298 007	4	1
6306 024	8	2
632 820	4	1
6330 316	6	1
6363 090	4	1
6366 564	6	1
63 6707	6	1
6471 885	8	1
6573 030	8	1

Ob —SS d G N

## No 764 (Gr 5802)

LAT —10

LONG 339

CLASS—IVa

Date—1906 February 15—22

W l gth	M n g	N mb t f
1864 919	8	6
4868 451	7	1
4875 671	6	5
4885 264	6	2
4928 511	7	1
496 107	6	4
5001 165	9	3
5009 829	8	8
5013 479	7	2
5016 340	6	4
50 3 052	8	5
5029 805	5	1
5032 092	4	
5043 761	5	3
5045 582	6	4
5053 056	6	4
5062 285	6	1

W l gth	M n w d g	N mb t f
5064 244	4	1
5066 174	8	8
508 341	5	3
5085 668	4	1
5087 239	6	6
5088 331 }	4	1
719 }		
5092 058	6	1
5096 908	5	1
5106 623	5	2
5106 773	5	2
5111 802	4	1
5130 543	8	1
5134 637	4	2
5134 649	5	1
5136 270	4	2
5140 553	5	1
5143 901	6	4
147 652	7	8
5150 363	6	4
5153 8 3	4	1
5160 419	4	1
5163 074	4	1
178 970	4	1
5211 700	6	1
5219 875	7	8
5225 695	8	4
522 9 4	5	2
5233 74	7	4
5239 13	4	3
260 561	5	2
5238 88		1
5295 185	4	1
5300 1 2	4	1
5300 928	7	1
304 3	4	2
5331 141	4	1
539 175	5	1
5409 339	3	1
5420 510	8	1
5420 474	8	8
5432 3	4	1
5438 5 )	4	1
5448 507 P	4	1
5460 5 2	7	7
54 7 901	5	1
5490 36	7	6
5490 J05	5	3
5504 117	5	1
5538 025	5	
5547 21	5	1
5620 24	4	1
5627 8 9	6	7
56 1 071		8
567 047	7	8
5 00 40	5	8
5703 97	6	6
5707 204	6	6

W l gth	M n w d g	Numb t f b t n
5727 873	6	5
5731 43	6	5
737 288	8	8
5743 645	7	6
5867 785	5	2
5873 486	5	1
Ob	-SS d G V	

## No 766 (Gr 5803 )

LAT + 14

LONG 310

CLASS—IVa V IIc IIa IVb

Date—1906 February 23—27

W l gth	M n w d ng	N b t f b t
4864 919	7	4
4875 671	7	3
4885 264	6	
4928 511	7	1
5001 115	8	3
01 9 829	6	4
5013 479	8	2
5016 340	8	2
50 8 052	8	3
5032 092	5	1
5043 781	4	1
5045 582	6	2
5066 174	8	4
508 668	4	1
087 39	5	1
5130 513	8	1
5136 270	9	1
143 001	4	1
5147 652	8	1
5150 383	6	3
5156 823	4	1
5219 875	8	8
5225 695	8	3
5239 742	8	1
54 8 474	9	4
5400 572	8	3
5490 367	7	3
5490 90	7	2
5627 859	7	3
5671 071	8	4
5672 047	8	4
5700 102	4	1
708 797	7	4
5707 204	7	4
5727 873	7	3
5 31 487	7	3
5737 288	9	1
743 645	10	3
5866 675	7	1
Ob	-SS d G V	

## No 774 (Gr 5816)

LAT + 6

LONG 75

CLASS—IVa IVb

Date—1906 March 7—15

W	l gth	M wid m g	N mb b t n
4864 919		8	6
487 671		7	5
4885 264		6	2
4928 511		7	1
4965 107		5	4
5001 185		9	3
5009 829		7	7
5018 479		8	2
5016 840		8	2
5028 052		8	3
5032 032		4	1
5043 761		5	4
5045 582		6	5
5053 056		(	4
5066 174		7	7
5085 608		6	1
5087 239		5	3
5106 628	778	5	2
184 697		6	2
5186 270		8	3
5188 890		4	1
5140 5 8		7	1
5118 901		6	4
5147 6 2		8	7
5150 363		7	4
5219 875		7	(
522 695		7	2
5238 712		7	4
5260 561		7	1
5304 35		6	1
5318 9 5		5	1
5380 748		4	1
5426 471		8	7
5470 572		7	6
5490 367		7	5
5490 905		7	1
56 7 85)		7	7
5671 071		7	7
5672 047		7	7
5700 402		5	3
5 08 797		6	6
5707 204		6	6
5724 107		4	2
5727 878		7	4
5731 437		6	4
5737 288		8	7
5740 195		5	1
5743 64		8	7

Ob —SS d G N

## No 775 (Gr 5817)

LAT + 0

LONG 106

CLASS—I IIIa IVb IIc

Date—1906 M r h 12

W	l gth	M w d	N mb b t n
4864 919		9	1
4875 671		7	1
49 8 11		6	1
4965 107		6	1
5001 165		9	1
5000 8 9		7	1
5043 761		7	1
5045 582		8	1
5066 174		9	1
5130 513			1
5134 697		6	1
5136 270		7	1
5143 01			1
5147 652		7	1
5150 363		8	1
19 875		(	1
5225 695			1
5300 578			1
5426 474		9	1
5470 572		8	1
5490 367		7	1
5490 905		6	1
5627 859			1
5671 071		6	1
672 017		8	1
5737 88		9	1
5743 645		9	1

Ol —SS

## No 776 (Gr 5818)

LAT — 6

LONG 88

CLASS— I IIIa IVb IVa

Date—1906 March 14 and 16

W	l gth	M l g	N mb b t n
4864 919		6	2
4875 671			2
488 264			1
4928 511		6	1
5001 165		8	
5009 829		(	2
5018 479		7	1
501 840			1
5028 052		6	1
5043 761		8	1
5045 582		6	2

2

W l gth	M n w d g	N mb b t	f ns
068 171	8	2	
186 0	8	1	
5147 652	8	2	
5150 863	8	2	
5219 875	7	2	
52 5 095	8	2	
5426 474	8	2	
5460 57	8	1	
5430 86	7	1	
56 859	7	2	
58 1 071	8	2	
5672 017	8	2	
5703 797	8	1	
570 204	8	1	
573 288	9	2	
5743 645	9	2	
Ob	—SS		

**No 786 (Gr 5821 )**

LAT + 16

LONG 313

CLASS—IVc IIIb I V IVb

Date—1906 March 21

W l gth	M n w d g	N mb b t	f
4864 919		1	
5001 165		1	
5009 8 9		1	
5023 052		1	
5045 582		1	
5066 174		1	
5136 270		1	
5147 6 2		1	
5426 474		1	
5460 572		1	
5671 071		1	
56 047		1	
573 2 8		1	
5 48 645		1	
Ob	—SS		

**No 788 (Gr 5826 )**

LAT + 14

LONG 276

CLASS—IVa IIc IVb

Date—1906 March 19—28

W l gth	M w d	n g	N mb b t	f
4862 029	8		1	
4864 919	9		5	
4875 071	6		4	
4885 264	6		3	

W l gth.	M n w d ng	N mb b rv t	f
4928 511	6	1	
4965 107	5	7	
5001 65	6	4	
5009 829	7	8	
5023 052	8	4	
5043 61	5	5	
015 582	6	9	
5053 056	5	5	
5066 174	7	9	
5087 239	6	7	
5136 270	9	3	
5140 553	6	2	
5143 901	6	5	
514 652	7	9	
5150 363	8	1	
5219 875	8	8	
522 695	7	3	
5 8 742	7	5	
5200 561	4	1	
5232 576	5		
5800 578	8	1	
5800 929	6	1	
5804 355	8	1	
5426 474	8	9	
54 0 572	7	8	
54(1 762	7	1	
400 387	7	6	
5490 672	6	1	
5490 905	7	2	
56 7 859	7	8	
5671 071	7	9	
5672 017		9	
5700 402	6	3	
5703 797	7	5	
5 07 204	7	5	
5727 873	7	7	
5731 437	7	7	
573 88	8	9	
5743 645	8	8	
866 675	7	1	
975 708	6	1	
6039 53	6	1	
6243 320	8	1	
Ob	SS d GN		

**No 796 (Gr 5830 )**

LAT — 9

LONG 245

CLASS—IVa IIa IVb

Date—1906 March 0

W l gth	M w d	n g	N mb b t	f
4965 107	4		1	
5009 829	4		1	
5045 582	4		1	

W	l	gth	M w d g	N mb b t	f
5053 056			4	1	
5086 1 4			4	1	
5148 901			4	1	
5147 654			4	1	
5219 875			7	1	
5238 712			6	1	
5426 174			7	1	
5460 572			4	1	
5490 367			4	1	
5627 859			4	1	
671 071			4	1	
5672 047			4	1	
5727 873			5	1	
5731 437			5	1	
5737 288			6	1	

Ob —GN

**No 797 (Gr 5834)**

LAT — 17

LONG 215

CLASS—I IIIb IVb IIIa

Date—1906 March 29

W	l	gth	M n w d n g	N mb b v t	f
4868 883			7	1	
4861 919			9	1	
4875 671			7	1	
488 284			6	1	
5001 105			J	1	
5009 829			6	1	
5023 052			8	1	
5048 761			8	1	
5045 582			7	1	
5061 174			9	1	
5136 70			7	1	
5147 652			8	1	
5219 875			6	1	
5225 95			7	1	
5300 578			8	1	
5426 474			9	1	
5460 572			7	1	
5490 367			7	1	
5627 859			7	1	
5671 071			9	1	
567 04			9	1	
5700 402			8	1	
5708 797			9	1	
5707 204			9	1	
5727 873			7	1	
5731 437			7	1	
5737 88			9	1	
5748 645			9	1	

Ob —SS

**No 801 (Gr 5837)**

LAT — 15

LONG 170

CLASS—I II IVe IVd IVb IVa

Date—1906 March 31—April 4

W	l	gth	M wid g	N mb b ta	f
4862 029			8		
4862 783			7	1	
4863 833			7	1	
4864 919			9	3	
4868 451			6	1	
4876 671			7	3	
4885 264			7	2	
4928 511			7	1	
4965 107			6	1	
5001 165			8	3	
5009 829			6	4	
5013 4 9			7	3	
5016 40			8	3	
5023 052			8	3	
5048 761			7	1	
5045 582			7	3	
5053 056			4	1	
5066 174			8	4	
5087 289			5	1	
5116 944			5	1	
5130 543			8	1	
5131 697			8	1	
5136 270			9	1	
5138 690			8	1	
140 53			4	1	
5148 901			7	2	
5147 652			7	4	
5150 363			8	2	
5 19 875			4	4	
5225 89			7	3	
5238 712			6	1	
300 929			8	1	
426 474			8	4	
5460 572			8	4	
5490 36			7	3	
5490 905			6	2	
5627 859			7	3	
5671 071			8	4	
5672 047			8	4	
5700 402			8	1	
5708 797			8	3	
5707 204			8	3	
5727 873			6	2	
5731 437			6	2	
5737 288			8	4	
5748 645			8	3	

Ob SS dGN



## No 806 (Gr 5843)

LAT + 20

LONG 107

CLASS—IVa IVb I

Date—1906 April 6 7

W	l	gth	M w d	g	N mb b	t	f n
4882 029			8		1		
4884 91			9		1		
4875 671			7		1		
4928 511			6		1		
4965 107			4		1		
5001 18			9		1		
5009 829			7		2		
5013 479			8		1		
5016 340			9		1		
5023 052			9		1		
5045 582			7		2		
5053 056			6		1		
5066 174			8		2		
5085 668			5		1		
5087 239			6		1		
5180 543			8		1		
5186 270			9		1		
5140 558			5		1		
5143 901			6		1		
5147 652			6		2		
150 368			7		1		
5210 875			6		2		
5225 695			6		1		
5238 74			5		1		
5300 78			8		1		
5426 4 4			8		2		
5160 572			8		2		
54 0 367			7		2		
5490 905			6		2		
5588 0 5			5		1		
5627 F			6		2		
5671 071			8		2		
567 047			8		2		
5700 402			6		2		
5703 797			6		2		
5 07 04			6		2		
5727 8 3			6		2		
5781 437			6		2		
5797 288			8		2		
5743 64			8		2		
5866 675			7		1		

Ob —SS dGN

## No 813 (Gr 5849)

LAT + 23

LONG 44

CLASS—IVa IIc IVb V I

Date—1906 April 8—15

W	l	gth	M w d	g	N mb b	t	f
4862 029			7		2		
4868 833			7		1		
4864 919			8		6		
4868 451			8		1		
4875 671			6		4		
4885 264			6		1		
4915 414			8		2		
4920 047			6		1		
4928 511			7		3		
4965 107			6		6		
5001 165			8		4		
5009 829			6		8		
5013 479			7		3		
5016 340			7		3		
5023 0 2			8		4		
502 027			8		2		
5043 711			6		7		
5045 582			7		8		
50 3 056			6		3		
5063 855			7		1		
068 174			7		8		
508 341			6		3		
5087 230			6		6		
5180 543			8		4		
5134 697			8		2		
5 86 270			9		4		
5188 690			7		1		
5140 558			5		2		
143 901			6		6		
5147 652			7		8		
5150 368			6		6		
5156 823			7				
5161 104			8		2		
5164 172			8		2		
5219 875			6		8		
5221 928			6		2		
522 695			6		4		
5288 742			6		3		
5426 474			8		8		
5460 572			7		8		
5490 367			7		6		
5490 905			6		2		
5588 025			5		3		
5627 859			6		7		
5671 071			7		8		
5672 047			7		8		
5700 402			5		8		
5703 797			6		4		
5707 204			6		4		
5727 878			6		6		

W l gth	M n g	Numb f
wd	g	b t
5731 437	6	6
573 288	8	8
743 645	8	7
5786 193	5	2
5860 175	6	3
5867 785	4	2
Ob	-SS	dGN

### No 820 (Gr 5855)

LAT + 16

LONG 270

CLASS—IIa V IIc

Date—1906 April 16—23

W l gth	M n g	N mb f
wd	g	b t
4862 029	7	1
4863 833	6	1
4861 919	7	5
4875 071	7	2
4885 204	6	1
4905 107	5	1
001 165	8	4
5003 829	5	6
5018 479	6	3
5016 840	6	3
5023 052	8	4
5025 0 7	7	1
5043 761	6	2
5045 582	8	2
053 056	5	4
066 174	6	8
5087 239	5	4
5130 543	6	2
5134 637	6	1
5136 270	6	3
5138 690	6	1
140 58	5	1
5143 301	5	4
5147 052	6	8
5150 368	5	6
51 6823	5	2
5160 419	5	1
5163 074	5	1
5219 875	6	5
5225 69	6	1
5238 742	6	2
5428 474	7	8
5438 802	5	1
5460 5 2	6	6
5490 387	6	3
5538 025	5	1
56 7859	6	7
5671 071	6	8

W l gth	M n g	N mb f
wd	g	b t
672 047	6	8
00 402		1
5703 797	8	3
707 204	8	3
5727 873	6	
5731 137	5	
737 288	7	8
5743 645	9	
866 6 5	6	1
Ob	-SS	IGN

### No 832 (Gr 5859)

LAT + 12

LONG 173

CLASS—I III/ IVb IIc

Date—1906 April 27—May 2

W l gth	M n g	N mb f
wd	g	b t
4864 919	5	4
4875 071	6	1
4885 204	6	2
4923 511	6	2
4935 107	5	3
001 16	4	1
5000 829	6	4
013 479	6	
016 340	6	3
023 052	7	
043 761	6	
5015 582	7	4
5053 056	4	
5066 174		6
508 341	1	1
5087 239	5	
5120 582		1
130 513		1
5138 70	8	1
138 090	7	1
5143 301	6	2
147 662		6
51 0 363	6	3
5219 875	6	3
5225 69	6	3
5300 9 9	7	2
5407 587	7	1
5107 888		
5420 10	7	3
120 613		
5426 474	7	6
5460 572	7	6
5490 387	6	4
5627 859	6	6
5671 071	7	6
5672 047	7	6

W l gth	M an w d g	Numb b t	f
5708 9	7	3	
5707 204	7	3	
57 7 873	4	2	
5731 437	4		
5737 288	7	6	
5743 645	9	4	
Ob	—SS nd G \		

**No 841 (Gr 5865 )**

LAT + 6

LONG 15

CLASS—IVb IVa I

Date—1906 May 7 9 11

W l gth	M w l g	N mb b t	f
4862 0 9	6	1	
4861 919	8	3	
487 671	7	2	
4885 264	6	2	
4905 107	6	1	
5001 165	8	2	
5009 829	8	1	
5023 052	7	1	
043 61	7	1	
5045 32	7	3	
5053 056	7	1	
5066 174	8	3	
5065 341	5	1	
5087 239	7	1	
5129 336		1	
136 2 0		3	
5138 690	7	1	
5139 087	5	1	
5140 553	5	1	
143 01	5	1	
511 652	7	3	
5150 383	7	3	
5156 823		1	
5219 875	8	1	
5 8 74	6	1	
5426 4 4	9	3	
5480 572	8	3	
5440 67	7	3	
5538 025	5	1	
56 7 859	7	3	
56 1 071	8	3	
5672 047	8	3	
5 03 797	7	2	
5707 204	7	2	
572 873	6	2	
5 31 497	6	2	
5737 288	8	3	
5743 645	9	2	

Ob —SS nd C N

**No 842 (Gr 5866 )**

LAT — 23

LONG 5

CLASS—IVb III IVa

Date—1906 May 6—13

W l gth	M n w d n g	N mb b t	f
486 020	6	1	
4864 919	8	5	
48 5 671	7	3	
4865 264	6	3	
491 414	6	1	
4928 511	6	1	
496 5 107	6	2	
5001 185	8	4	
003 929	7	4	
5013 179	7	1	
016 340	7	1	
5023 0 2	7	3	
5013 761	6	2	
5015 92	7	5	
5053 056	7	1	
5086 174	8	5	
085 311	5	1	
097 239	6	2	
5129 336	5	1	
130 543		3	
5134 697	7	1	
5136 270	7	5	
5138 690	8	2	
5139 087	5	1	
5140 553	5	1	
5143 301	6	3	
5147 652	7	5	
5150 363	6	3	
5156 823	5	1	
5219 875	7	2	
22 695	9	1	
238 1	6	1	
5426 1 1	9	5	
5460 5 2	8	5	
5490 367	7	4	
5130 905	6	1	
5 38 0 5		1	
607 859	7	4	
6071 071	8	5	
5672 047	8	5	
5703 97	7	3	
5707 04	7	3	
5727 873	6	2	
5 31 437	6	4	
5737 288	8	5	
5743 645	9	4	
5866 675	7	1	

Ob —SS d G N

## No 844 (Gr 5867 )

LAT + 13

LONG 855

CLASS—I IIa IIc IIb

Date—1906 May 15—17

W l gth	M an w d g	N mb b t f
4884 919	8	2
4875 671	6	2
4885 264	6	2
5001 165	8	2
5009 829	7	1
5028 052	8	2
5043 761	8	1
5045 582	8	2
5086 174	9	2
5146 270	8	2
5147 052	7	2
5150 863	7	2
5219 875	6	1
5225 695	6	1
5300 78	7	1
5426 474	8	2
5460 572	8	2
5490 307	6	2
5627 859	6	2
5671 071	8	2
5672 047	8	2
5700 402	7	1
5703 797	7	1
5707 204	7	1
5737 288	8	2
718 64	8	2
Ob	-99	

W l gth	M n w d g	N mb b t f
5001 165	7	5
5009 829	6	2
5013 179	7	1
5016 240		1
( 3 052	7	4
5048 61	0	2
5045 582	7	0
5086 174	9	6
5130 548	7	2
5134 097	6	1
5186 270	8	4
5188 080	7	1
5143 901	7	1
5147 052	8	4
5150 863	7	5
5219 875	6	2
5225 095	0	1
5300 578	7	
5300 9 9	7	1
5126 471	8	6
460 572	8	
190 367	7	1
5027 859	7	1
5671 071	8	6
672 047	8	6
5700 402	7	1
708 797	7	2
5707 204	7	2
727 873	6	9
5731 137	7	3
5737 288	9	0
5743 645	)	6
5860 675	0	2
Ob	-SS	d K V S

## No 849 (Gr 5870 )

LAT + 9

LONG 182

CLASS—IVa IIIa IVb

Date—1906 May 22— 6

W l gth	M w d g	N b b t f
4863 833	7	1
4864 919	8	6
4875 671	6	6
4885 264	6	4
4915 414	5	1
4928 511	5	1
4965 107	6	1

W l gth	M w d	N mb b t f
4862 029	7	
4861 919	8	4
4875 671	7	8
4885 264	6	3
491 414		1
4928 511	6	2
001 165	8	4
5009 829	6	2
5023 052	7	3

W l th	M n w d	N mb b t f
5025 749	7	1
5043 761	7	1
5045 582	7	5
5053 056	4	1
5066 174	8	5
5130 548	7	1
5136 270	8	4
5138 690	6	1
5143 901	5	1
514 652		5
5150 363	7	3
5219 8	6	1
5300 5 8	6	2
5426 471	8	5
5460 572	7	5
5490 367	7	4
5538 025	5	1
5627 859	6	3
56 1 071	7	5
5672 047	7	5
5700 402	7	1
5 03 97	7	1
5707 204	7	1
5727 873	5	1
731 437		1
5737 288	8	5
5743 645	9	4
Ob	-SS	d G N

W l gth	M w d mg	N mb b t f
508 239	6	4
120 592	6	1
136 270	6	2
5188 690 P	5	1
140 53	5	1
5143 901	5	1
5147 652	6	6
5150 363	5	4
5219 875	6	5
5238 742	6	3
5426 474	7	6
5460 572	6	6
5490 367	6	6
5 90 905	5	1
5538 025	5	2
5627 859	6	6
5671 071	6	6
5672 047	6	6
5700 102 P	5	1
5708 797	6	2
5707 204	6	2
5727 873	6	4
5731 437	6	4
5737 288	7	6
5743 64	8	3
Ob	-SS	1 G N

## No 850 A (Gr 5871)

LAT + 11

LONG 132

CLASS—IIc IIIa IIa

Date—1906 May 24—June 2

W l gth	M w d n g	N mb b t f
4864 919	6	4
487 671	6	2
4885 264	6	4
4928 511	6	1
4965 107	4	5
5001 165	8	1
5009 8 9	6	5
50 10 2	6	4
025 49	5	3
5043 61	7	1
045 82	6	6
5053 056	6	3
5066 174	6	5
5085 841	5	3

## No 864 (Gr 5885)

LAT + 1

LONG 305

CLASS—IVa IVb

Date—1906 June 8 10 11 15

W l gth	M w d g	N mb b t f
4864 919	7	3
4875 671	6	1
4885 264	6	1
4928 511	6	1
4965 107	4	1
5001 165	8	1
5009 829	6	4
5013 479	7	1
5016 840		1
5023 052	6	3
5025 749	5	2
504 58	6	4
5066 174	6	4
5085 841	5	1
5087 239	5	3
5180 543	7	1

W l gth	M w d n g	N mb b t	f
5134 697	7	1	
5136 270	6	1	
5138 690	6	2	
5143 901		2	
5147 652	6	3	
5150 368	6	3	
5219 875	6	4	
5225 695	6	1	
5238 742	6	1	
5300 578	7	1	
5426 474	7	4	
5460 572	6	4	
5480 367		1	
5 38 025	6	1	
5627 859	6	3	
5671 071	6	4	
5672 017	6	4	
5700 402	6	1	
5703 79	6	1	
5707 204	6	1	
5 7 873	6	2	
5731 437	6	2	
5737 288	7	4	
5743 645	8	2	
Ob	-SS	d G N	

**No 872 (Gr 5892)**

LAT + 4

LONG 11

CLASS—I IVb IIb IIc IIa

Date—1906 June 24

W l gth	M w d n g	N b	b t	f
490 107	5		1	
5009 829	6		1	
5023 052	4		1	
5025 749	4		1	
5045 532	5		1	
5066 174	5		1	
5087 289	5		1	
5134 697			1	
5147 652	5		1	
5150 363	5		1	

W l gth	M d	N b	b t	f
5219 97	7		1	
5426 174			1	
100 2	6		1	
5480 36	5		1	
5 38 02			1	
5627 95	6		1	
5671 0 1	6		1	
567 047	6		1	
5703 797	5		1	
5707 204	5		1	
5727 873			1	
5731 437			1	
5737 288	6		1	
Ob	v	-C N		

**No 874 A (Gr 5893)**

LAT + 6

LONG 65

CLASS—I IIa IVb IVa

Date—1906 June 26

W l gth	M w d	N b	b t	f
5009 829			1	
5023 0 2	4		1	
502 711	4		1	
5045 82			1	
5066 174	5		1	
5087 9			1	
514 652			1	
51 0 363			1	
5 19 875			1	
126 474			1	
54 0 5			1	
5538 02			1	
562 859			1	
5671 071			1	
5672 017	5		1	
5707 204	5		1	
5727 873	4		1	
5731 437	4		1	
5737 288	5		1	
Ob		-G N		

## Catalogue of widened lines observed from July 1905 to June 1906

W l gth	O	N mb f p t wh l th l w d	N mb f t m b d	M m f t w d g	W l gth	O g	N b f p t wh l th l w d	Numb f t m b d	M n m f t w d g
4862 029	C	4	30	7	088 855		1	1	7
4862 788		18	1	7	5064 244	T	1	1	4
4863 833	F	14	14	7	5000 078	O	2	3	6
4864 919	V	3	165	8	5066 174	T	59	208	8
4868 451	T	5	5	7	5070 16		1	1	8
4869 652	Γ P		2	7	5077 62		1	1	8
4875 671	V	45	106	7	5085 841	T	8	15	5
4882 836	F	1	1	7	5085 668		5	5	5
4885 124		2		7	5087 239	T	39	90	6
4885 264	T	29	58	6	088 831	N	1	1	4
4886 859		1	1	7	719 } <sup>P</sup>				
4913 803	T		2	6	509 058		1	1	6
4915 414	T	8	14	7	5096 908		1	1	5
4920 047		4	4	6	5106 028		2	4	5
4928 511	T	22	32	6	5106 773		2	4	5
4965 107	C	99	88	6	111 802 P		1	1	4
4975 530	T	1	1		5110 944		1	1	5
4976 508	V	1	1	6	120 592	T	3	3	5
4977 833	F	1	1	7	5122 299	O	1	1	6
5001 165	Γ	18	97	8	5122 968	O	16	28	7
5009 829	T O	59	183	7	5129 836	T P	2	2	5
5013 479	T O	32	61	7	130 543	N	16	28	7
5016 220		1	1	6	5134 697		30	55	6
5016 340	T	38	74	7	5134 849		2	2	6
5020 208	T	1	1	6	5136 270	F	43	101	7
5030 052	Γ	45	114	8	5138 690		22	38	7
5025 027	T	2	3	8	5138 690		1	1	4
5055 749	T	6	9	5	5139 087		3	3	5
5029 80	F	1	1	5	5140 094		2	2	7
5032 032		3	1	4	140 336			2	7
5043 781	T	41	79	6	5140 553		15	21	5
5045 54		1	1	5	5140 992		1	1	7
5045 532	T	55	177	7	5141 497		1	1	7
053 056	T	20	45	5	5143 901		43	94	6
5053 170		1	1	6	5147 652	1	59	214	7
5062 285	T	1	1	6	5149 013		5	6	6

## C t l g of w doned kn obs d f m J ly 1905 t Ju 1906—cont

W l gth	O g	N mb f p t h l l b w d	N mb f t m b d	M m t f w d g	W l gth	O g	N mb f p t n w h h t l l b w l	N mb f t m b	M t d g
5150 363		52	167	7	369 011				
51 0525		1	1	7	125		1	1	8
5150 823	O —	18	27	5	530 1913	M	1	1	8
515 163		1	1	4	5399 675	M	2	3	5
5160 188		1	1	6	407 587				
5160 419	C —	6	6		088	Mn	2	2	8
5160 551		4	5	7	5409 389	F	1	1	3
5161 91	O —	1	2	5	5420 510		6	9	8
163 074	O —	4	4	5	613	Mn	3	5	8
163 200	O —	1	1	4	5426 471		60	223	8
5164 007		2	2	6	5432 753	M	1	1	4
5164 172	O	1	2	8	5436 802	Γ	1	1	
5164 724	Γ P	1	1	0	5438 259		1	1	4
5178 070		1	1	4	5438 507		1	1	4
5201 260	T	1	1	5	5441 49	F P	1	1	6
5211 770	F	1	1	6	460 572		1	184	7
5219 8 5	T	59	184	7	5461 762		1	1	7
5221 028	O	1	2	6	5477 901	T	8	9	6
522 198	C I Γ	1	4	7	5482 078		11	19	6
225 655	Γ	41	94	7	490 807	T	4	183	7
5225 974	C	1	2	5	5430 672		1	1	
5238 74	T	23	52	6	5490 905		24	44	6
5239 137	O	4	8	6	498 709	F	2	3	5
5260 571	O	6	8	6	5503 444		1	1	9
5 8 570	T	2	3	6	5504 117	T	3	3	7
288 389		1	1	5	5537 928	M		5	6
95 185	F		2	4	5538 025	Mn	16	23	5
529 955	A (w ) ?	1	1	0	5547 215	Γ V	1	1	5
5300 1		1	1	4	5626 245		1	1	4
5300 578		12	18	7	5627 859	V	50	194	7
5300 9 9	C	18	21	8	5671 071	V	60	221	8
5304 355	O	6	13	5	5672 047	S	60	221	8
5318 955	O F	1	1	5	5687 063		3	3	6
5330 48		1	1	4	568 1691	T	2	2	5
5331 641	O	1	1	4	5689 812	A P	1	1	7
5338 517		1	1	8	5698 746	V	1	1	5



*Catalogus frondul b e ad f m July 1905 to Jun 1906— ont*

W l gth	O g	N mb f p t wh h th l b w d	N mb f t m d	M m f t w d g	W l gth	O g	N mb f p t wh l th l b w d	Numb f t b d	M m f t w d h
5700 402		15	24	6	6090 429	F	1	2	6
5708 797	V	52	121	7	6119 740	V	1	2	6
5707 204	V	51	120	7	6126 435	T	1	2	4
5712 996	O	1	1	6	6199 898	V	4	4	6
5710 671	T	9	14	6	6210 895		1	1	6
5724 107	A	1	2	4	6216 567		1	2	5
5727 878		52	141	7	6230 812	N	1	1	3
5781 437		5	141	7	6240 863	F	1	1	4
5737 288		60	221	8	6248 820		7	9	9
5740 195		8	8	6	6258 727	T	2	2	5
5743 84		54	180	8	6261 816	T	2	2	5
5766 550	T	1	1	6	6274 870		1	2	6
5774 2 0	T A	1	1	5	6280 98	{ A (O) F }			
5786 193	T Or	1	2	5	833		2		
5806 6 5	T	25	40	6	6285 884	V	1	1	5
5807 785	O	11	14	5	6293 170	A (O)	3	5	7
58 3 436		1	1	5	6298 007	F	1	1	4
5900 260	A (w )	1	1	5	6306 024	A (O)	6	8	8
5903 748	A (w )	1	1	5	6327 820	N	1	1	1
5918 68	A (w )	1	1	6	6330 816	O	2	2	
5918 3	T	1	2	7	6363 090	O F	1	1	4
5923 865	A (w )	1	2	6	6366 564	T	1	1	6
5966 055	T A ?	1	1	7	6366 707	N	1	1	6
5978 768	T	4	5	6	6455 820	O	1	1	
6039 953	V	8	11	6	6471 885	O	2		8
6063 080		4	6	6	6493 190	A (wv)	1	1	5
6064 853	T	1	1	5	6499 168	F	1	1	5
6081 665	V	2	3	6	6578 030	O ?	4	4	8
6085 470	T F	2	2	5					

## N O T I S

1906

- January 2 730 C slightly reversed D<sub>s</sub> slightly dark (S S)  
 3 730 C slightly reversed near the east end of the group (S S)  
 4 Seeing poor C slightly reversed near 727 and between the spots in 730 (S S)  
 10 730 C reversed over the smaller spots (S S)  
 11 Seeing poor  
 12 Faculae to east of 739 C and F displaced to violet over whole group Over most of the area the displacement amounted to only 0.5 A but in one place it was as much as 1.5 A There were slight reversals at the same place D<sub>s</sub> was not visible (S S)  
 13 739 C slightly displaced to red near the eastern end of the group (S S)  
 14 741 C slightly displaced both ways and reversed to east of group 738 C reversed 740 C reversed inside the group and between it and the limb (S S)  
 15 740 C slightly displaced near the spot (S S)  
 21 748 and 745 C reversed (G N)  
 22 745 C brilliantly reversed between main spots and D dark (G N)  
 23 745 D<sub>s</sub> very dark and sharp over the small spot (between the two main spots) and a little to the east of it C slightly reversed on the small spot and in the region showing D<sub>s</sub> dark 746 D<sub>s</sub> dark between the spots C quiet (G N)  
 24 745 C reversed on a small spot west of the main spot D<sub>s</sub> dark in the same place 746 and 747 C quiet and no dark D 748 C knotted and broken in two places west of the main spot D<sub>s</sub> dark in both places (G N)  
 25 748 C slightly reversed (S S)  
 26 745 C faintly reversed and D<sub>s</sub> slightly dark 747 C quiet no dark D<sub>s</sub> 750 C reversed over the small spot between the main spots D<sub>s</sub> dark at the same place (G N)  
 27 Poor sky 745 C reversed over the small spots in the centre of the group 750 C strongly reversed over the whole group D<sub>s</sub> dark (S S)  
 28 750 C slightly reversed D<sub>s</sub> slightly dark (S S)  
 29 748 C displaced to red about 0.5 A in F (S S)  
 30 745 C slightly reversed D<sub>s</sub> slightly dark 750 C slightly displaced to red in big spot (S S)  
 31 748 C reversed to east of spot D<sub>s</sub> dark at the same place 750 C faintly reversed and D<sub>s</sub> slightly dark at the same place (G N)
- February 1 750 C slightly reversed and displaced to violet about middle of group D slightly dark 747 C slightly reversed to east of spot (S S)  
 3 750 C strongly reversed (S S)  
 4 750 dark C alone displaced to red about 2.0 A D<sub>s</sub> dark in same place (G N)  
 9 755 C reversed over almost the whole group — very brilliantly over the umbra of the principal spot and at the eastern end of the group D<sub>s</sub> dark over the east and west ends of group (S S)  
 10 755 C knotted and reversed all along the smaller spots D dark C quiet and no dark D<sub>s</sub> over main spot (G N)  
 14 764 C reversed both on east and west sides of spot very strongly at one point 762 C reversed near spot dark C slightly bulging both ways between spot and limb (S S)  
 15 764 C quiet no dark D 755 D<sub>s</sub> slightly dark to east of spot (G N)  
 16 Faculae round 755 very bright continuous spectrum (S S)  
 17 766 C displaced both ways and brilliantly reversed between spot and limb D<sub>s</sub> slightly dark at same place (S S)  
 18 764 C quiet no dark D<sub>s</sub> 766 C brilliantly reversed in several places and knotted between the spots of the group D<sub>s</sub> dark except at east of group H brilliantly reversed 767 C faintly reversed D<sub>s</sub> slightly dark (G N)

1906

February

- 19 166 B C reversed H brilliantly reversed (SS)  
 20 714 quiet 716 C knotted and faintly reversed D dark (GN)  
 21 766 C brilliantly reversed near the small dots between the spot D<sub>2</sub> very dark and sharp at same place but diffused and only slightly dark at other part of the group (GN)  
 22 161 C displaced to red over a large area amount small a little to outermost of spot gradually increasing along a line passing nearly through the spot till it reaches a maximum of 1 A so the distance to north west of spot 766 C displaced to violet about middle of group also slightly reversed (SS)  
 24 766 C slightly reversed over whole group (SS)  
 26 Cuddy 166 C slightly reversed to east of main spot (SS)  
 27 766 C reversed between spot and limb (SS)

March

- 2 70 C strongly reversed all round the spot 771 C reversed dark C slightly displaced to red and D<sub>2</sub> slightly dark to east of spot 72 C reversed dark C displaced (0.5 A in F) to red on spot D<sub>2</sub> dark between spot and limb (SS)  
 3 171 C knotted and reversed D<sub>2</sub> dark all along the group 72 D<sub>2</sub> dark midway between spot and limb C faintly reversed at the same place (GN)  
 5 772 C reverses over a wide area—very strongly on the very small spots in the middle of the group and also some distance to the east of the group On the small spots dark C was slightly displaced to violet (SS)  
 7 73 C reversed near spot 774 C reversed near spot dark C slightly displaced to red to the west of it (SS)  
 8 74 C knotted and faintly reversed east of the spot D slightly dark in the same place (GN)  
 9 774 C reversed over a wide area round the spot—very strongly close to spot on east and west side 71 C reversed and dark C slightly displaced both ways near middle of group 17 C reversed into a moderately bright streak about long some distance to east of the group where there was no visible spot but where the spectr. heliogram shows very bright flocculi D<sub>2</sub> dark and sharp at the same place (SS)  
 12 71 C slightly displaced to red to west of spot 77 C reversed over the companion spots (SS)  
 13 71 and 776 quiet 715 C reversed D<sub>2</sub> dark in the same place (GN)  
 14 114 C slightly displaced to red to east of spot 17 C reversed and dark to west of spots 776 C very brilliantly reversed on the spot 783 C reversed over the faculae near the spot (SS)  
 15 74 77 78 C quiet 7 C reversed D<sub>2</sub> dark (GN)  
 16 85 C reversed all round the spot 78 C reversed over a faculae near the spot (SS)  
 18 787 C quiet D<sub>2</sub> slightly dark to east of group (GN)  
 19 782 C reversed between spot and limb 78 C displaced slightly to violet about the centre of the group and slightly reversed at the same place 11 C reversed between spot and limb (SS)  
 20 788 quiet 791 C faintly reversed on both sides of the spot D<sub>2</sub> dark in the same place (GN)  
 21 78 C reversed over several places—very strongly on umbra of main spot and about the middle of the group D<sub>2</sub> darker in latter position 10 C faintly reversed at the middle of the group At a point where there was no spot 11 was displaced 1 A to violet the spectr. heliogram shows only small flocculi at this point (SS)  
 22 786 D<sub>2</sub> dark east of spot C thin in the same place 88 C reversed and dark C slightly displaced to red to the west of the spot C brilliantly reversed west of the small spot leading the group D<sub>2</sub> very dark in the same place 79 D<sub>2</sub> dark but C quiet 796 D<sub>2</sub> dark C knotted (GN)  
 27 797 C reversed about the middle of the group dark C slightly displaced to red about the same place D<sub>2</sub> dark over almost the whole group (SS)  
 29 783 C reversed near spot—very strongly a little to east of it (SS)  
 31 796 C reversed to the east of the spot 801 C reversed on the small companion spots (SS)

1906

April

- 2 80° The hydrogen lines displaced (about 1 A in F) to violet over a large area and slightly to red about the same place 807 C strongly reversed and dark C slightly displaced to red near the west end of the group 801 C reversed to west of group (strongly close to it) and displaced to red (1 A in F) (S S)
- 4 801 hydrogen lines displaced on spot (about 0.5 A to red and 1 A to violet in F) also by about 1 A to red close to the spot C strongly reversed near latter position (S S)
- 6 811 C reversed and D dark about the east end of the group (S S)
- 7 813 C knotted and faintly reversed D<sub>2</sub> dark (G N)
- 8 813 8<sup>h</sup> 29 C strongly reversed and D<sub>2</sub> dark near west end of group 9<sup>h</sup> 48<sup>m</sup> reversal of C very strong over the whole space between the spots nothing on the spots 9<sup>h</sup> 3<sup>m</sup> D D b b b<sub>2</sub> b<sub>4</sub> 316,90 (1 e) 5018 690 (Fe) 1924 107 (1 e) also reversed — b<sub>2</sub> strongly Reversals mostly to west of main spot and slightly on it Reversed part slightly inclined to the dark line 10<sup>h</sup> 0<sup>m</sup> D<sub>2</sub> dark over the whole group both on and outside the spots 10<sup>h</sup> 15<sup>m</sup> D and C bright over umbra of main spot 10<sup>h</sup> 22<sup>m</sup> dark F displaced over whole group to red by about 1 A 10<sup>h</sup> 25<sup>m</sup> D dark only to west of spot 10<sup>h</sup> 40<sup>m</sup> displacement of F confined to one point to west of spot amount as before (S S)
- 9 806 dark C slightly displaced to red at east extremity of spot no reversal of C and no dark D 813 C broken and reversed west of the south spot D<sub>2</sub> dark west of the group only 816 C broken and slightly reversed D<sub>2</sub> dark 918 quiet (G N)
- 10 813 hydrogen lines displaced to violet (1.5 A in F) D<sub>2</sub> slightly dark at west end of group (S S)
- 11 816 C reversed between the spots (S S)
- 12 818 quiet (G N)
- 14 819 C reversed and dark C slightly displaced to violet near west spot (S S)
- 17 813 C reversed 819 C reversed and dark C slightly displaced to red Faculae at position angle 50 C reversed (S S)
- 18 820 C faintly reversed west of main spot (G N)
- 19 819 C lightly reversed over whole facular region near spot 520 8<sup>h</sup> 15<sup>m</sup> C reversed near spots — strongly to a point near the centre of the group D<sub>2</sub> slightly dark at the latter position C slightly displaced to red near eastern faculae spot 9<sup>h</sup> 30<sup>m</sup> C displaced slightly to violet over wide area near the spots 9<sup>h</sup> 33<sup>m</sup> amount of displacement 1 A in F near east end of group (S S)
- 21 Seeing bad 820 C displaced slightly to violet near spot at 8<sup>h</sup> 1<sup>m</sup> The displacement soon disappeared (S S)
- 25 820 831 832 C on line near all the group (S S)
- 28 82 C reversed and dark close to main spot C also reversed over the faculae to the east of the spot 834 (S S)
- 29 831 C reversed dark C slightly displaced to red near east end of group 832 C strongly reversed dark C displaced to red to east of main spot and close to it C reversed over whole group of faculae near east limb (S S)
- 30 831 C very faintly reversed between the two main spots D<sub>2</sub> dark in the same place 832 C broken and reversed east of the main spot D<sub>2</sub> dark and diffused over the same place (G N)

May

- 1 882 C slightly displaced to red between the two big spots (S S)
- 2 832 C slightly reversed near spot C reversed over faculae at position angle 255 (S S)
- 4 882 C knotted and faintly reversed to east of spot D dark and diffused at same place (G N)
- 5 841 C reversed near the spot 842 C strongly reversed and D<sub>2</sub> dark to the west of the spot and close to it (S S)
- 6 842 C reversed and D<sub>2</sub> dark in the middle of the group (S S)
- 7 841 C quiet 842 C broken and reversed east of the spot and all along the group D dark 845 C knotted and slightly reversed D<sub>2</sub> slightly dark (G N)
- 8 841 C slightly displaced to red over a large area near the main spot 842 C reversed over the whole group dark C slightly displaced to violet at the east end (S S)

1906

- May
- 13 846 C brilliantly reversed and D<sub>8</sub> dark over almost the whole group dark F displaced 0.8 A to violet about the middle of the group 842 C displaced to red some distance to east of the spot (S S)
  - 14 844 C strongly reversed and D<sub>8</sub> very dark over almost the whole group 846 C reversed and D<sub>8</sub> dark F displaced about 0.5 A to red (S S)
  - 15 844 C reversed near spots 846 C reversed in the middle of the group (S S)
  - 16 Both spots in group 846 observed for widened lines at the same setting (S S)
  - 17 Both spots in group 844 observed for widened lines at the same setting 844 C reversed and broken 846 C strongly reversed on both umbrae more strongly on the western one (S S)
  - 19 846 C reversed near spot dark F displaced 1 A to red at a point near the middle of the group 849 C reversed between spot and limb (S S)
  - 20 846 C reversed near both the spots and dark C slightly displaced 849 C brightly reversed between the first two spots and also between the second spot and the limb Dark C slightly displaced in both places (K V S)
  - 21 846 C reversed and dark C slightly displaced to violet between spot and limb 849 C reversed and D<sub>8</sub> slightly dark over whole group (S S)
  - 22 Seeing poor 846 and 849 C slightly reversed near spots (S S)
  - 23 Seeing poor 850 C reversed and D<sub>8</sub> dark between spot and limb (S S)
  - 24 849 C brilliantly reversed at the east end of group dark H displaced 1 A to violet 850 C very brilliantly reversed and D dark over the whole group H also very strongly reversed Dark F displaced 1 A to red over a large area near the east end of the group (S S)
  - 25 854 C slightly reversed and dark C slightly displaced to red near the spot 850 C reversed near the spots—strongly near the centre of the group dark C slightly displaced to red near the same place (S S)
  - 26 849 C to n and dark C displaced about 1 A to red D<sub>8</sub> dark (G N)
  - 27 849 C broken (G N)
  - 28 849 C slightly reversed and D slightly dark near spots (S S)
  - 29 849 C faintly reversed in several places 855 C faintly reversed and knotted (G N)
- June
- 2 850 A C brilliantly reversed just to east of the umbra of the spot knotted and reversed between the two parts of the group 80 D dark (G N)
  - 3 851 C faintly reversed (K V S)
  - 5 861 C faintly reversed (G N)
  - 8 861 C broken and knotted and slightly displaced to violet at one point (G N)
  - 10 866 C reversed over almost the whole group (S S)
  - 11 864 C broken and knotted in places D faintly dark all along the group (G N)
  - 20 81, C reversed (S S)
  - 21 81 C slightly thinned between the two spots 869 C quiet (G N)
  - 25 814 C strongly reversed east of main spot dark C displaced to violet on the spot and to the west of it (S S)
  - 27 877 C brilliantly reversed and D dark close to the east spot of the group (S S)
  - 30 880 C broken near the small dots east of the big spot 877 C knotted and broken between the spots of the group (G N)

C MICHIE SMITH

24th November 1906

Director Kodakanal and Madras Observatories

## BULLETIN No IX

[illegible]



D t l b	H I S I	B	L t t d		L m b	H i t	R l
			N t l	S t h			
1906							
J y 8 SS	9 13		1		D	4	O 9 l t n t d d t t h l t p
	17		7		I		F m t l d l t g t d
	10	10		19	L	70	S N t l
	13	1		135	W		O C C O
	13	8		)	W	1 (	A l l l } C t l t }
	13	10		9	W	0	
	18			0	W	0	
	1)			( 5	W	0	
	13		11		W	10 ±	O t f t C
	11	3	20		W	25	S N t
	40		19		W	5	
D 9 SS	) 1	4	89 5		F	10	
	8 7	1	0		I	20	D b l
	51	2	1(		L	7	
	1)		)		I	10	
	1			8	I	20	T t
	10	1			I	90	
	40			(0	I	10	
	39	1		86	I	0	
	36			72	I	60	
	85	0		77	E	0	
	34	0		)	I	1	
	3(	1			W	0	
	83	1	48		W	80	90 l l O
	29	4	41		W	40	l l t t I d 95 l gh
	1	1	4		W	110	S l t g Ab t tw ) d b t ly
	20	1	9		W	20	80 h g l O
	15	1	16		W	15	
	11	4	11		W	7	D b l
	11	0 5	52		W	10	
D 10 SS	10 18	1	70		I	4	
	12	9			I	60 & 80	
	1	0		0 5	I	45	B d t t p
	0	2 5		3	I	30	} O t d t t }
	0	1		7	I	30	
	8 4			74	F	0	
	41			77	I	48 ±	
	48	1 5		71	W	3	
	10 1			5	W	5	
	42	1		90	W	0	D b l A t k l l l t l m b t t l t p f
	37	3		3	W	100	t t O l m t h w l O
	38		98		W	50	D h d f m l m b
	8	5	43		W	50	
	3		9		W	35 ±	V y f t
D 11 SS	9 22	4	72		F	2	
	8 58	1	85 5		I	30 ±	O
	9 16	1	55		D	3	T l f w t w d O
	11	1	8		I	10	
	9		15		E	5	
	7				I	0	
	3		13 5		E	30 ±	S l d t l D t h l f m l m b
	3		12 5		D	40	S N t
	9		10 5		I	30	
	3		10		I	60 ±	A l n t g t k t l d f m l m b
	8 9		7 5		I	0	
	58			8 5	L	0	
	38			72	E	40	
	38			73	E	8) ±	
	38			74	E	30 ±	
	38			70	E	60 ±	S l g h t l y b d t t l }
	34	0 5		81	F	15	
	30	1 5		80	E	25	
	9 58	2		74	W	25 ±	D b l I t
	50	3		59 5	W	5	I t



D t d b	H IST	B	L t t l		L b	H g l t	R m l
			N t l	S t l			
1906	v						
J y 11 89	9 16	1		32	W	2	D bl
— 12	4	5		45	W	60 & 35	Sl t w tw l
	33	1		105	W	20	A t l t k l t h l f n l m b
	37		19 5		W	10	Γ t
	34		31 5		W	0	
	3	4	43		W	50	
	30		51		W	0	
	2		7		W	15	
D 12 88	9 45	1	4		E		C
	10 48	2	8		F	25 ±	
	42	1	13		E	20	
	40	5	J		E	15	
	33	25		21	F	40	} M t g t t p
	33	2		30 5	E	40	D t l d f m m b l l l g l t b d t h n
	5			9	E	30	b t t
		1		82	E	30	
	10	2		74	W	30 ±	
	15	1		6	W	2	
	2	1		74	W	30	
	0	0		69	W	0	
	9 8	15		5	W	30 ±	Π g h t 2 t l d l 56
	43	1		32	W	20	
	8	7		2 5	W	30	
	5	10	9		W	15	Π l l g d f m t l l 50
	14 48		22		W	30	l b d O
	45	1	42		W	20	W t d y l g l t S N t
D 13 85	9 0	05	55		D	30	
	17	05	6		I	2	
	17	1	59 5		I		Sl t t w l t l l t p l m t s t
		(	20		F	4	t t p
	5		1 5		l	30	} M b g l t t d t b
	8	7		95	F	15	
	56	05		21	I	1	
	52	1		35	I		Sl t t w l
	52	1		25 5	I	10 ±	l l m t g t l l p m
	18	05		28	D	30	Sl t g t l w l
	48	0		31	F	30	
	46	1		47	Γ	10	
	4	05		70	F	10	
	42			82	F	17	
	39	1		93 5	W	30	F i
	36	4			W	0	l t
	34			71	W	30	
	32			68	W	10	
	31	0		65	W	15	
	28	4		5	W		A b d t b
	9 43	1		42	W	20	
	40	15		3	W	1	
	36	1		9	W	20	T l l t t l w d
	33	1	23 5		W	0	
	31	1	37		W	40	
	29	1	40		W	10	V y f t
	28	2	44		W	10	
	8	1	40		W	15	D bl
			77		W	1	
D 14 88	10 29	1	1		E	2 ±	Γ t
	25	1	47		F	15	B g h t
	10	8	22		L	55	
	11	8		5	F	60	
	4	1		12	E	2	Sl t g t w d
	5	4		2	E	25	
	8	1		10	E	20	Sl t g t w d
	9 58			75	E		
	56			78	L	0	
	54			84	E	1	

D t d b	H I q r	B	I t t d		L l	H gh	R m k
			N th	S th			
1308							
J - y 14 SS	9 53 51 0	1		81	W		
	11 12 10	0	30	0	W	30	Slightl b d ttp
		0	41		W	30	Slightly b l ttp; Sl t th l
	3	0.5	11		W	80 ±	B l t t l
	2	1	16		W	2	
	10 8	1	1		W	4	
			92		W	0	S N t
D 15 SS	1 15	1	(		l	0	I t
	13	1	70		l	25	
	10		(1		l	10 ±	B ht C t
	1		(		l	0	I t
	8 )			2	l	0	
	5	4		5	l	0	
	71			58	l	10	
	1			61	r	10	
	14			6	l	70	
	15			55	l	25 ±	T p y i t
	1 0	1		58	W	30	
	4	10		36	W	30 & 45	
	38	4	1		W	1	
	31	1	2)		W	40	S N t
	23	8	41		W	6	S l t l t th
	1)	35	18		W	60	l t d t l t
	1(		8		W	0	
D 19 GN	4 31	1	7 5		I	1 0	C A t l l
		10		5	F	40	N t l
	11	1		78	E	35	F l m t l
	30	0		81 r	W	12	B l l
	2			33 5	W	30	S N t
	24	0.5		20	W	15	
	8 31			13	W	85	C A l l t y f m l m b
	1 2			(	W	0	
	20	f	8		W	35	} O t l t t l y t l
	7		14		W	1	
	7	1	31		W	50	T p l l d l t thw d
		1	3		W	20	
		1	13		W	20	
			11		W	0	
	0	85	71		W	30	
	8 4	0.5	76 r		W	1	
D 20 GN	1 20	1	23		I	15	
	15	)		35	I	120 & 4	S N t
	0	7.5		1	F	50 ±	A t l l l t l g w y f m l b
	4	15		13	I	10	
	17	0.5		7	I	8 ±	
	1 5	8.5		78	I	10	
	2	1		62	W	0	
	15	1.5		9	W	12	
		0		11	W	1	T l f l w t l d f l t
				8	W	20	l l f w b t h d t t l
	40	5	18		W	30	l t l O
	10	1	215		W		T p l y t l m b t L t + 12 W
	33	1	28		W	2	C t d t t l l t f m t t p
	32	3	42 5		W	15	2 l l t l C
	28		70		W	85	40 h g l O
	28	0	74		W	21	
D 21 SS	9 8	2	32		I	50	
	20	1	26		E	0	b b b b y l g l t t l
	23	1	22		I	45	
	0	1	1		E	60	Sl t t w l i I t + 3 D
	16	1		5	I	15	
	15			9	I		D b l
	1	1.5		1	I	20	B ht

D t d b	H IST	B	L t t d		I m b	H ght	R m k
			N th	S th			
1906							
J y 21 SS	9 10 6 2 0 8 57 5 52 49 9 55 52 4 43 35 5	1 4  15 1 1 15 5 15 15 15 1		195 28 41 47 68 75 80 85 85	E D E E E D W W W W W W	30 40 60 20 60 20 20 20 20 80 65 80	A b l t E t h l f t d th y b l t  F t h l m t  D l l S l t thw d
D 2 GN	9 10 5 14 3  0 8 52 52 53 52 47 4 45 9 28 25 24 2 20	4 4 1 2  15 1 0 3 2  5 1 05 8	315 26 21 11  6 0    5 635 (85)		E L I D  I I I I D I W W W W W W	65 0 20 20  10 12 30 20 20 4 4 1 10 30 1 1 12 60	( C t d t t l l t l m t t l F t t k f w 6 f m t l t p l t l t A l t t k d t l l f l m l } Alm t d t h t l F l m t l S l d F t C l m 3 l d l 4 l l F l t l
D 23 GN	9 11 ) 9 4 2 0 8 58 23  21 16 18 14 14	1 2 ( 5 0 3  15 05 45 1 1	73 39 3  0 505 755 41 37 34 7 3 19 525		I I E D L I I W W W W W W W	20 10 4 0 30 20 50 25 12 30 25 35 20 0	S l g l t l l C D S l t h thw l     S l t t l F l l l O l l C
D 24 GN	9 0 47 45  43  41 35 25 23 22 22 17 17 10 7 5 4 2 0 9 56	2 3 05  05  2 1 4 05 05 2 1 15 05 05 4 48	85 73 15 19  125  1  4 24 48 57 60 72 755 425 38 26 45		I D L  L L E L L F E E W W W W W	20 30 1 25  20 70 120 25 0 25 15 0 50 30 25 25 12 35	S l d t l S t g d 30 l h C A t t k b t 4 l n g f w n thw d f m t h m d l l f t B d t t l p t l m b g t L t + 14 D d 10 L S t g d 90 h g l C S t l S l t g thw d } O t l b y t k t t p F t t th l t l m n t t p S l h t l y t l l C S N t 2 S N t 3 60 h g h C D b l

D t d b	H IS 1	B	t d		I mb	II ht	R m l
			N tl	S th			
1906							
J u y 24 (N	J 1	0	68		W	1	
— 14	3	0	75 5		W	2	
			81		W	30	
D 2 S	10 4		73		I	50	
	1	1	0		I	0	
	9 8	05	12		I	35	Ull l H y f t
	58	1	28		I	1	
	51	05	28		I	1	
	55	8	1		I	1	
	53	1	19		I	60	} M t l F Mg l N l t g
	50	6	19		I	10	
	48		9		I	80	} F t 9 N t 1
	14		1		I	100	
	80	1		1 5	I	100	} S N t 2
				6	E	80	
	21	2		81	I	10	A t l b l 7 l g f w l h w d f m t l
	27	1		42	I	15	C l k
	20	1		40 6	L	80	S l t H w l
	1	1			I	17	D b l
	1	2		59	I	20	
	10	J		75	I	110 60	V y f t O
						85	
	10 28	05		83	W	1	
	25	2			W	2	
		3		42	W		
	20	0		15	W	0	
	17	1	27		W		
	15		42		W	10	S l g t l y b d t t l
	11	1	15		W	40	
	11	1	47		W	40	
	11	0	40		W	30	S l g t l y l d t t l
	1	05	71		W	0	
	8	05	73 8		W	0	
D 26 G N	9 20	1	45		F	30	B l t t p
	8 29		33		I	20	O 5 m l l D t l d f l m l
	21	1	21 5		F	10	S l 6 t l d b t
	9 1	1	13		I	0	
	15	15	18		I	20	
	1	0	17		I	30	S l t g t w d
	13	05	10		I	30	S N t l
	11	0			F	1	
	11				I	3	
	10	5	14		I		
	9	2	17		I	L w	B g l t
			0		I	30	A l d l d t l l f n l m b l f g m t y
	7		25		I	20	S l t 6 t h d
	5	05	45		I	15	
	1	1	51		I	90	
	1	3	35		I	0	
	1	1	7		I	30	
	8 55	1	70 5		I	60	
	55	1	15		I	0	S l t g t w d t l l t p m
	0 9	0	6		W	20	
	32	05	42 5		W	15	
	30	14	16		W	20	S N t 2
	25	1	4		W	20	
D 27 S S	10 28	05	78		L	30	V y f t S l l t y l t g t d
	27	2	75		I	50	S l d
			71		E	15	
	9	05	68		I	20	
	30	1	29 5		E	50	} A l t m t t t p
	30	8	23 5		E	70	
	23	15	15		E	25	} A t l g t l t p f t l f n d
	23	05	12		I	25	
	23	4	6		F	80	
	23	15	2		E	25	
	23	15			E	0	
	19			15	E	25	D t h d f m l m b
	16	2		81	D	15	

D t d b	H I S T	B	L t l		L l	H g l t	R m l
			N t l	S t l			
J y 27 — 2d SS	1 28	5		5 5	Γ	35	S N l
	5	4		71	Γ	60 ±	
	11 3	1		83 5	l	40	
	2	0 5		91	W	40	
	9 2			7	W	30	
	10 7			30	W	30	
	5	1		17	W	25	
				12	W	2	A l d l b t 3 l i l n t p l l t l m b
	54	1 5		6	W	0	
	15	17	20 5		W	50	S N t 2
	41	1	0 2 5		W	25	
	40	1	73 5		W	0	
D 28 SS	9 26	1	51		L	(0	} C t l t t l A t b t 8 l f l w t d f m t l t p l l m t l l l t l l b A l
	26	1 5	7		Γ	80 ±	
	26		76		l	50	
	2		41		l	30	
	22	0 5	36		l	20	
	18	1	32		l	70	l l l S l t t l d
	18	5	2		Γ	60	l l t t h t i t l l l m
	11	0 5	18		Γ	15	
	10	17	3 5		l	80	
	9	1		9	l	20	
	8	2		1	l	20	I t
	8	12		31	l	30	
	8	2		1	L	40	
	58	0 5		56	l	10	
	58	1		59 5	l	20	
	4	1		( 5	l	80	
	1	1		84	—	35	
	4			77	W	60	S l t l y b l t t l
	47				W	0	
	47			91	W	30	
	10	1		91	W	30	D b l
	44	0 5		15 5	W	2	
	49	0 5		11	W	20	S l w w d
	40	1			W	25	
	36		2 5		W	30 & 40	
	37	2	( 7		W	70	
	31	1	7		W	20	
D 29 S 9	9 31	3	90 5		Γ	30	l l l t l C
	31	8	77		l	30	A l t t l l t t l l b m t t h
							l l g C t l t + 74 l
	31		69		L	60	B l C
	28		60		Γ		Γ t t l
	0	12	97		l	60	M t C
	10	14	20		l	60	S N t
	0		6		L		S l t t w l
	1	0 5		18	l	30	
	1	0 5		20	l	15	D l l
	8 57	11	92 5		l	5	B l t
	53	0	53		E	30	
	53	3	58 5		l	30	
			60		D	20	
	50		(		Γ	10	
	50		4		Γ	10	
	0	0 5	67		D	10	
	48	1	73 5		E	10	
	40	0	84		W	60	B l t l U p l p t f l l t g
							w d
	44	1	8		W	15	
	40	2	78		W	60	A f t l t l h d f l m b
	10 8		73 5		W	20	
		0 5	52 5		W	20	
	4	2	45		W	0	
	3	0 5	40 5		W	30	D l l
	0	4	84		W	50	B l t t
	9 40	6 5	1		W	0	S l t l t l l d l b g l t C
	47	2			W	15	S l t t d t t h
	45	1	26 5		W	2	S l t t h w d

D t d b v	H T S 1	B	T t t l		L m b	H g l t	R m l
			N t l	S t l			
1J06							
J y 29 td	SS	41 10 38 3	15 1 05 05	61 68 7 83	W W W W	25 30 20 0	} S l t t l
D 30	SS	29 1 15 11 11 7 1 8 1 50 41 1 1 40 0 1 15 2 2 9 10 31 31 30	1 1 1 1 1 9 0 2 2 25 0 1 1 1	92 75 ( 5 3 ( 41 31 1) 3 11 5 ( 84 60 7 71 (7 33 10 6 1 f 1 27 5 16 5 84	Γ F I I I I I I Γ I W W W W W W W W W W W	5 30 0 10 0 30 30 0 10 20 15 35 15 0 10 10 40 I w L w 10 0 20 1 30	
D 31	GN	2 05 0 1 20 8 31 31 9 18 8 15 5 2 0 50 47 47 17 45 44 31 34 0 38 38 34 30 30 27	2 05 0 1 1 15 1 0 1 12 2 0 05 05 0 1 1 5 1 15	83 81 79 78 7 5 13 5 1) 13 5 10 3 5 28 9 13 68 ( ) 5 72 83 83 5 77 73 5 30 5 29 5 13 73 77 84	F F F I I I I I F I I I I E I I I I W W W W W W W W	1 2 2 2 30 13 20 20 1 1 8 1 30 20 0 15 15 20 15 10 0 35 30 15 15 15	} S l t g t w d d l m t t h th V t l S l d O Γ t V t l T p l g t l y b g h t th th s t f t l p m S N t l
F b r u y 1	SS	9 9 6 6 10 30 30 9 4 27 2 0	25 05 05 05 05 05 05 05 05	84 82 78 76 5 73 55 51 46 5 88	F E I F F E E E E	20 35 20 25 30 25 150 20 15	} T l t l b y f t t l } S l t g t w d d l m t t h th V t l S l d O Γ t V t l T p l g t l y b g h t th th s t f t l p m S N t l

r t d b	H IST	B	L t t d		L l	H ght	R n l	
			N th	S h				
1906								
l b —	y l td	SS	9 0	1	35	l	0	3 l h t 10 30
			8 58	2	17	l	70	( t d t t p r m wh lff t i
			50		8	r	1	10 40m
			49	05	4	D	0	C t d t t l l t l n t t p
			48	4	3	J	25	
			46	1	14	D	20	
			44	1	30	D	20	T p t l m b g t I t — 34 F
			4		39	L	1	B d g tw d t t l
			40		85	E	25	Sl hily b l t t l
			3	5	79 5	W	20 & 40	Il hgh t l t 70 l gh J 38
					73	W	—	O l g t l y d pl l b l y n p m n
								t l t l t
			9 32	2	31	W	5	Al ht t
			31			W	15	
			30		11	W		
			30		12 5	W	5	S N t
			28	1	15	W	10	D bl
			7		10	W	2	Sl d
			25	2	15	W	10	A w t l t l w t l d b l k
								lk t t p
			20	7	27 5	W	1 &	
			15		71	W	2	
			15		73	W	5	
			18	2	76	W	30	
			11	15	82	W	5	
			11		82	W	10	
D 2	GN		9 3	15	78	I	80	
			8 39	0	5	l	120	C V y f t l
			9 5	1	1	L	30 (0	S N t
							110	
			8 51	1	7	r	1	B d g th l
				15	17	l	1	
			49	1	21	l	15	B ght
			40	5	95	r	80	V y f t O
			40		31	D	15	D
			4	0	59	r	20	
			30	05	83	W	20	
			9 51	15	17	W	30	T p b t l w y (
			52	1	85	W	40	T l l d t l w d i t th O l l g
								t f t l l t p
			4		9	W		R t g l
			1	1	30	W	0	
			37		70	W	30	
			38	1	74	W	30	
D 3	SS		9 37	1	77	r	2	
			34	6	78	L	10	
			30	1	84	r	0	D l l
			80		80	D	20	
			28		59	L	5	
								l b h f m h m l d l m t
			3	7	35 5	E	0	l m l g t I t + 51 E
			8 59	1	32	D	120	V y t 6 y f t l d ( } S N t l
								t t l t p l h l n
			9 15	12	20	D	100	t L t + 58 E
								M t b } b l d t l w l l
			7	1	6	E	25	l bl
			3	8	4	F	20	
			8 58	7	32	E	50	A h t f t t k l h g w y tw d
								f t l d l l f t
			56		52	E	15	r t
			54	05	9	E	2 ±	V y t t
			51	15	83	W	4	
			47	05	77 5	W	30	
			46		75	W	25	
			45	05	72 5	W	1	

D t d b		IF IST	B	L t t d		L l	II l t	R m k
				N th	S th			
1906								
F b y 3 — onid	SS	10 5	1		3)	W	10	l bl
		1	1		7	W	20	3 b l t b
		0	1		8	W	0	Sl t g w t l
		9 7	1			W	10	
		5				W	0	
		58		4		W	60	D t l l f l l
		1		155		W	30 ±	S \ t
		14	6	20		W	15	
		10	1	33		W	60	S N t 3
		3J		7 5		W	10	R l b d d b
		84		W	10	tw l		
D 4	GN	10 10	1	8		D	40	C l m l l l
		9 1	5	73		l	10	C F t l t l l m t b
		17				l	10	C C t l l l m l y h l l d
		17		19		l	1	C
		10 5	5	125		l	60 \ 7	
		9 4	6	30		F	2 ±	
		51	2			l	10	A b l f m l m d l l t t l l l
		16	1	4		l	15	t l t + d l
		18				l	17	
		1		3		F	15	} Sl d
		1	1		1	l	3	A f t l l t l y l h t p t
		12	1	18		F	12	b
		11	25	33		l	0	
		41	1	99		l	10	D l l D l l l l l
		10	05	1 5		l	20	II l l l t t l
		32	3	7)		l	15	
		30		8		W	10	} D t l d l l l
		30		8		W	15	
		10 35	1	77		W	30	Sl d D t l d f l l
		3		15		W	45	
33	1	43		W	35	D t l d l m l l		
30	15	18		W	30	} O l d		
25	4	8		W	70	Sl g l t l y t l		
25	1	3		W	70	B d t t p } t d t l A t l l t		
		34		W	45 ±	l t l l f t h l w w d f m		
		3		W	10	S N t		
15		77		W	35	B l l t l w d t t l		
15		80		W	3			
D 5	SS	8 2)		71		F	150	O v y f t H y l
		9 9	1	615		l	20 ±	B l l
		(	2	58		l	2	
		2		46		F	0	
		1)	7	45		l	30	
		16		12		l	0 ±	V y f t l d l l l l l l
		12		9		F	4J	Ab t 2 b l D l l f l m b
		1		7		l	0	Sl d
		10		2		l	10	
		9	2		6	l	1	S N t l
		(			)	l	20	Sl l
		3		11		F	15	l l O t d t l l f l t L t - 6
		2	05	17		F	10	B l t
		1	2	28		l	15	
		8 5	11	38		l	30	Cl g l l t t l
		1	2	17		l	10	S l l t
		48		61		F	1	
		4	1	83		W	100	T p b d d l t w w l t l m b
		3	1	7 5		W	0	C l L t 81 W
		0 17	1	62		W	1	3 b d t l
10	05	68		W	2 ±	F t Sl t n w t d		
14	2	43		W				
10	2	48		W	70	S d p m l l y l d f h l		



D t d b	H I s I	B	L t t l		L b	H ght	l m l
			N t l	S t l			
190							
F b y GN	10			89	W	20	l t l t t l w l
— id	0	1		2	W	0	S N t
	9 52	10	20		W	50	l l t l N t t l f i C
	8 9	11	31 5		W	5	O
	9 39	05	69 5		W		S l t t w l l t l
	89	1	2		W	2	St l t t l l ght t h l w l l l
	88		71		W	45	
	81	3	77		W	35	
D 6 GN	8 9		73		I		O
	9 2	05	70		I	0	S N t l
	5 2		77		I	5	(
	9 31	2	55		E	30	S l l t h l l l t l
	30		4		I	12	
	5	15	33		I	0	S t d b t l t l l
	28	1	30		I	20	
	28	15	2 5		I	20	
	1		19 5		I	30	S N t
	22	1		15	F	40 ±	
	1	05		2	I	(0	I g t y B d t t l l ( t l t t h
	15			2)	F		l t l m l l t l l t l l
		15		38	I	50	l t l m l l l t l l L t l l I T l
				4	I	30	h l l l i t l O
	1	1	15		F	12	
	0		( )		I	15	D l l D l l l l m l l
	8 58	7	80 5		W	(0	I l m t l M t n O
	9 48	2	45		W	10	) b l S l t t t l w d St g n O
	42	3	21 5		W	0	I l t t l
	8 23		11		W	30	
	9	0	1		W	0	
	9 38	1	71		W	0	
	38	15	74 5		W	80	
	38		77		W	60	
D 7 SS	9 30	05	84		E	10	
	8 43	05	75 5		I	12	C v y l l
	9 29		74		I	30	S g h t l y l l l C
	22	05	61 5		I	50 ±	S l t t w l l m t g t l t l m n
	22		58		I	100	S t
	1)	1	53		I	30	A l p
	14		33		I	15	
	11				I	20	
	10	3		75	I	20	S l t t t l l
	6			18	I	25	V y f t C l
	3	3		34	I	70	I t l t l l l l m l
	0			41 5	E	0	S l l y i t w y f l m l
	8 58			3	I	2 ±	
	58	1		58	I	0	
	53			74	I	2	A l t t l t l l f m l l
	43			81	W	6	B d t t l C l y f n t b t r
							b d t l
	10 12			7	W	10	
	9	0		48	W	90	B g l t b 180 l g l C
	2	8		7	W	70	
	9 56	45		15	W	75	D l l M t C
	52	05	35		W	15	
	50	45	12		W	20	
	47	0	17		W	25	
	4		19		W	20	
	45		21 5		W	30	
	41	2	36		W	45	
	38		54		W	15	V y f t
	35		70		W	20	
	33	2	71		W	35	
	32		78		W	20	
D 8 GN	8 39	05	78		E	40 ±	O
	9 20	25	59 5		E	40	S l t t l y l C
	15		53 5		F	80	h l m t l } O t l l
	15	2	49 5		E	60	

D t d b	H I S I	B	L t t d		I m l	H l t	R l
			N t l	S t l			
1906							
F b y 8 ( N	10	5	7		I	30	S t
— 12	1	1	3		I	15	D h l
	2	1		1	I	15	
	0	15		26	I	15	
b d)	3)	05		98	I	12	
1)		0		(1	I	45	C I t
	0	1		(15	I	30	O
	4	5		83	W	15	
35	2	27		19	W	30	C l 45 l g l d t t p m t l m b
30	2	35		245	W	65 110	6 (L t - 3 W
30		2		115	W	(0	A l t l d f l m b
80	1	74			W	5	
20					W	0	
					W	20	
					W	20	
					W	20	
					W	90	B l b w t l t l j
D 9 S S	9 15	4	(85		I	80	
	14	(	(1		I	40	S N t 1
	10				I	15	S l l t C t l O t d t t h
	5	2	30		I	2	l l l
	0	3	185		I	15	S N t 2
8 2	8	8			I	0	
45	1	1			F	30	A t l f m l l d l t l m b t L t - 2 M
1	1	1			I	5	R d g l t t l l t p m t t p
38	1		(4		I	5	l l t l t l w
95			89		W	5	A l l t d f l d l l m b
10 8	05		71		W	10	
5	8		49		W	30	C
5	7		90		W	55	l l l t t w d d m t l t h
10			1)5		W	5	D t l d f m l l O t d t t l t l f t l
			4		W	1	t l C
38	1	5			W	(0	S l l t l h
92	2	2			W	50 ±	S l t b w d l t g l l m
82	2	28			W	0	S N t 3
0		71			W	30	l p b g l t l l g l l y l l t h b
		71			W	3	A l d l l l l y l n l b
D 10 G N	9 2	1	81		F	25	
	22	2	7)		I	5	I d t t f
	20	1	0		I	30	
	0	1	54		I	15	
	18	1	515		I	1	
	17	1	41		F	20	
	15		25		I	35	
	15	05	215		I	35	C t d t t p
	5	4	185		E	35	
	5			5	I	15	
8 5	5	5		10	E	90	D t l d f l m l
52	3			29	F	1	
0				48	I	15	
10 9				47	E	12	
		1		83	I	12	
	5	2		74	W	15	
	4	1		53	W	20	D b l
	0			31	W	1	
	4			29	W	15	
8 26	05			18	W	12	
9 55	15			10	W	20	
45	85	65			W	45	C
35	9	85			W	6 & 60	S N t 1
22	2	42			W	35	S N t 2
8 26	05	78			W	25	D t h d f m l b
		79			W	25	
					W	25	O

[illegible]

D t d l	H [ S l	B	I t t d		I l	H g l t	F k
			N t l	t l			
906							
F b y 14 S b	8 33	05		71	L	0	F i l l l l d t l
— i d	33	0			L	30	F t
	30			81	I	30	D t l l f l b
	25			58		0	
	25	1		8	W	10	
		1		73	W	10	
10 3		3		8	W		
0				3	W	20	
9		2		31	W	10	
1				28	W	0	
1		1		215	W	10	S N t
11		1		45	W	10	M t g t t l S l l b y t k l t
11		1		15	W	10	l g l 50 l h
3		8	10		W	4	S N t
)			195		W	10	S N t
		1	33		W	0	
0		1	1		W	15	
		1	83		W	5 ±	
D 15 C N	8	14	29		F	0	
	17	1	5		E	1	
	15	1		1	E	1	
	40	1		32	I	1	
	3)	0		16	I	1	
	35	3		73	I	1	
	31			79	L	4	A t k d l l l f l l
	30			83	W	20	S l h t l l l t t p
9 52		2		10	W	10	O l l
1		3		9	W	30	
4		1		8	W		B l g t w l t t j
8 31		1		10	W	20 ±	C
) 35		8			W	10	A l f t l l t b t l t h n
							g l f t b t l O d
			20 f		W	12	H y l
	28	1	305		W	15	
	5	3	415		W	0	A h l l
	18		71		W	30	S l i g l w l
	10	1	785		W	0	U p l l f l t l l f l w
	10	1	785		W	1	B g l t
D 16 S S	) 7	2	73		F	10	
8 53		4	18		E	0	
3		4	11		F	50	t d t t l M i l l O p u n
3		05	97		F	0	t l f m f t + 10 E t + 13 L
16			1)		E	±	I t S l t t w d
8		4		8	I	60	
33		05		42	I	10	
27				78	I	1	
1				83	I	30	S l t h h w l
20		2		73	W	10	
) 56				12	W	30	
				10	W	0	
5		2		58	W	10	
50		0		31	W	10	
18		4		10	W	2	A h l l
1		7		(	W	3	
9		4			W	1	M i l l F i C
3		05	7		W	70	
3			18		W	40	S l g l t y b l t t l
18			71		W	50 ±	A h t t t t l t n l l d p l l l
1			7)		W	30 ±	t t
							A f t t l l l l l f m l m b
11			80		W	50 ±	
D 17 S S	9 40		725		I	20	
	35	9	315		F	00 ±	F l m t l M t O
8 24		15	15		I	30 ±	S N t 1
59		4		8		30 ±	S N t 2
(		1		195	I	15	D l l B g l t
1		05		0	E	10	

D		d b		H	B	L t t l		L b	H gl	l m l				
				IST		N th	th							
1906														
F b	y l	S	8 49	2		73	F	4	C	l k				
			47	05	76	E	0							
			47	05	9	E	30	±						
			45		83	D	25	±	S l g t l y b d t t l					
			48	05	79	W	15	±	F t					
			10 20	05	47 5	W	25	±	C p l l 2 b l t b d					
			14	05	31	W	2	±	3 l h					
			0 58	0	71	W	30	±	S t g t l w l					
			58		78	W	30	±	l l l t l t 45 h g l C					
			55	05	J	W	20	±						
D 18	G N		8 50		7		L	5						
			4	05	51	L	12							
			42	13	95	E	90	±	110 l l C					
			38	15		E	0							
			35	15	29	E	1		I t l l f b l t					
			30	1	3	I	3							
			20	05	82	D	4							
			0	0	88	E	1							
			9 2	15	60	W	0							
			0	15	34	W	15		C l l M i l f l t f l t					
			8 8	15	20	W	20							
			58	15	23	W	0							
			58	15	2	W	30		S l t g t l w d } C t d t l					
			55	2	47	W	20		A h l l					
			52	05	71	W	0		S l g t l y b d t t l					
			D 19	S S		9 30		78	D	30	±	S N t l		
						5		66	I	15				
						25		37	I	40	±			
						20	85	38	I	130	±	S N t 2		
						20	05	30		70	±			
10	05	12				I	30	±	S l t t t l B l t t l l g l t					
3	5					L	35		t k p l g l b w d f m t l t l					
1	05	28 5				I	2		I t l d d l l					
8 59	05	10				I	1							
7	1	45				I	50		S l t t l w d					
			52	1	49	F	0							
			49	1	75	I	15							
			47		79	F	30		l g l t l y l l t t l					
			5	0	82	F	1		B l t l m l l l					
			44	1	80 5	W	10							
			42	2	73	W	30							
			40	0	88	W	2		B l t l d t l p					
			36	1	81	W	10							
			10 7	05	89	W	30							
			2	05	2	W	3		S l g l t l y l l C					
			9 57	25	13	W	25		S t l l l l l g l t					
			56	0		W	30		I l k l t t p					
			55	15	2	W	10		S l t g t l w l					
			52	3	29	W	1							
			52	1	32 5	W	50		Tw t k l l t 5 l g p d l					
									l d t f t l t p					
							85	±	S l t g t w d d m t g l n t p m					
									t t l					
			49	1	35 5	W	30	±						
			49	1	38 5	W	25							
			47	1	42 5	W	20		l t g t h w d					
			43	05	46	W	25		S l g h t l y b d t t p					
			8 34		65	W	25		O					
			34		67	W	15		C					
			9 39	0	7	W	15		D b l					
			36	15	73	W	40							
			33	2	76	W	80		N w l t t b					
			D 20	G N		8 5	1	38	L	35				
						55	25	35 5	E	80		O p m 90 h g l d f l w t w d s		
						50	1	15	E	12		t t p		

D t l b	1906	F b —	y 20 id	GN	II IS 1	B	L t t d		I m b	II l t	R k
							N l	S t l			
D	21	GN	8	15			0		F	0	I d t t l
			40					8	I	0	B d t t l
			90					11	I	0	
			3					25	E	2	
			92					135	I	15	C l l
			82					48	I	30	q m l l t l l f l b
			8					0	I	I	l l t l y l l C
			9	12				405	W	12	90 h h l l l d C
			10					105	W	30	
			8						W	25	
									W	15	
			3						W	30	A l l t 3 l y f l m b
			3						W	30	
			2						W	30	±
D	22	GN	9	2			15		I	1	
			5				38		I	20	±
			22				3		F	1	I l l y l l t j t l l t
			2				0		I	30	±
			0						I	1	C l l
											A l l l l d t l l m b by thr
			12					5	I	1	
			12					28	I	15	
			10					4)	I	1	
			98					25	W	12	
			30						W	5	S l t t l l d d t g l m b g t
									W		L t + l d W d + l d W
			30						W	30	
			2						F	10	±
			9						F	50	±
D	23	SS	16				6)		I	2	I t B l t t l
			11				8		I	30	V y f t j t h l f m l m l
									I	20	L w h l f b g h
			4					32	I	20	
			2					385	I	0	
			9	19				40	I	50	S \ t l
			7					52	I	50	
			1					8	I	80	±
								(8	I	15	±
			2						F	55	O
			10	7				3	W	0	S l g l t l y l l t l m l l l
			6					17	W	20	C l k
			4					38	W	60	S N t 2
			2					35	W	20	
D	24	SS	0					2	W	25	
			9	58				05	W	30	A l l
			5						W	5	
			5						W	15	S N t 3
			9						W	5	I t
			4						W	25	S N t l
			43						W	55	
			40						W	10	D b l B l t t l
			33						W	50	W t l l f t h t t l t h
									W	60	
			1)	6				81	E	25	B l t h w d t t p
								30	E	25	
			15					585	E	15	±
			1						W	30	±
D	25	SS	9	3			90		F	90	±
			1				71		F	31	±
			57				72		I	100	±
			50				(		F	10	S N t
			51				(7		F	20	
			9				19		E	0	
			52				10		E	15	
			15				85		E	5	±
			42				18		I	5	
								6	I	0	
											C S m l l d t h d f l m b
											V y f t d t l l f m l m b
											M t l l

D t d b	H IST	B	L t t d		L b	H ght	R m k
			N th	S th			
1906							
F b y 24 SS	8 40	05		J	D	20	Sl t t l w l
— 22	37	2		21	L	30	C l l b d t h l t t p
	34			J	L	20	
	32	2		55	E	40	B d t t p
	29	1		755	E	6	T t l l t t d l t l d
	5	2		J	E	60	m t g t i p
	9 7	15		4 5	W	40	
	20	4		2	W	20	
	15	11	2 5		W	40	
	8		695		W	60	l t t l 70 l l O
	(	2	1		W	40	V y f t
	5	5	745		W	20	V y t g l t t L t + 76 5W
			83		W	10	
D 25 SS	15 0	1	50		E	60	l t t l
	14 58	15	42		E	35	D
	54	15	16		E	20	
	10 33	3		5 5	F	30	V y l l l t L t — 3 5 l
	15			73	L	30	
	6			77	F	15	
	14 51			81	L	30	
	7			82	W	40	Sl t t l w d U l p l H d t l l f m
	46	1		19	W	0	
	41			3	W	20	
	3	3	05		W	50	
	13 5	05	205		W	20	
	5		89		W	30	
	3	0	71		W	30	
	3		73		W	30	S N t
D 26 SS	10 34	1	76		F	25	F t
	1	4	43		L	25	
	2	8	18		F	45	
	9 6	5		525	F	35	
		1		725	E	0	
	0	05		7	L	50	B l t t l
	11 4	1		0	W	25	
	3	2		45	W	25	
	2	1		40	W	20	
	10 54	3		4	W	30	B l l
	54			05	W	25	D
	43	1	61		W	40	B l t t l
	36		83		W	35	S N t
D 27 SS	10 21		55		F	75	Sl t l y l l t l d l l
	14		71		L		Sl t t l w l
	9 48	1	53		F	30	A l t
	39	1	40		F	60	
	39	15	48		L	60	O t d t t l
	10	05	115		E	45	
	8 26		82		E	30	C
		1	23		E	40	S N t l
	46			28	F	30	W l l k t t l
	45			51	E	1	
	15	1		53	F	25	
	5			56	L	30	
	31	5		735	L	50	
	27	15		81	L	50	A b g l t t k t l d d l
	25	1		82	W	10	
	10 39	6		28	W	80	
	36	9		135	W	80	C l l t t p
	3			10	W	40	
	35	3		65	W	30	
	32	2	85		W	85	A l g l t w t h f t t k t t h t h
	31	05	18		W	25	B d g t h w l t t p
	28	5	235		W	15	
	27	3	405		W	25	S l t d t t h
	24	2	70		W	50	S l g l t y l d t l m a d l T p h p
	23	1	82		W	50	Sl t g w t w d
							S N t 2

D t d b	M I S T	B	L t t t		I b	H gl	m k		
			N t l	S t l					
1806									
M rch 2	SS	9	16	2	73	I	20		
		15	1	30	I				
		8	2	2		E	45	} A l t g M t g t l	
		8	2	2		I	15		
		1	5	5	85	F	20		
		0	1	1		F	30	D l l	
		5	3	3	85	J	45		
		51			1	W	50	A f l t l l f l l	
		51			6)	W	1		
		0	86	1	3	W	(0	S l t g t t d f L t - 15 W	
		36			11	W	2	A l d l t t l l t h d i m l m b d	
		35	05		J	W	20	1 l l t t	
		31	5		65	W	0	D l l	
		31	15	7		W	5	T l l b t l O	
		30	3	345		W	35		
		24	9	10		W	50	S N l	
		21	1	0		W	3 ±	l l t t l t t t t t t t	
		21		71		W	3	l l t t l t g l l l t t h w l	
		1)	05	83		W	30	( l l l t l l l t t t d t t h l	
		D 3	GN	8	7	735	L	12	
(	15			155	L	10			
54	5			6	L	35			
50	75				I	40 & 30	C l t d t l l l o l l l		
J	27			1	61	W	20	(0 h g l C	
2	1				(1	W	0	l t	
5	6				2	W	30	I t	
2					(	W	1 w	B l t	
31				05		W	30 ±	S l l A l p p l l w	
26	15			3		W	1	C S n l l d t l l f l b	
31				7		W	30 ±	S t l l y t k (	
34				21		W	10 ±	C D t l l l l l	
10	8			84		W	90	C l l l l t l l t l l t l l	
0	2			67		W	3	B l t 110 l l l l	
0	3			72		W	1		
0	1			72		W	0		
0	1			79		W	1		
D 4	GN			9	20	9	I	0	
				1	1	73	I	30	
				13	1	18	I	12	
		12	1	)	I	30			
		11	2	14	I	30			
		8	4	3	F	1			
		7			D	80			
			05		F	30			
			1		E	35			
		3			I	1			
		0			F	1			
		41	1		W	0			
		44	1		W	30			
		40	4		W	60			
		3	4	1	W	20			
		30	2	29	W	(			
		30	1	33	W	90			
		25		0	W	12			
		22	1	725	W	45			
		22	1	75	W	25			
D 5	SS	9	23	2	E	20	D l l		
		21	5	745	D	40			
		1	15	51	E	10			



D t n d b	H IST	B	L t d		L b	H l	R l
			N tl	S tl			
1906							
M h 5 SS	1 10	2	32		E	3	} C t d t r V t l l
- t2	5	1	27		L	8	
	58		20		L	50	
	7	1		8	L	20	
	55	1 5		16	I	30	
		4		15	I	0	
	52	1			E	30	
	2	0 5		25	L	30	
	50	1 5		8	I	0	
	16			38	I	0	
	15	0		19	T	30	
	4			58	E	30	
	10 0			62	T	30	
	56			40	W	10	
	53			33	W	0	
	48	1	2	6	W	100	
	47		6 5		W	25	
	44		1		W	2	
	4				W	30	
	40		1		W		
	3	1	6 5		W	30	
	35	0	32		W	11	
	31	1	35 5		W	5	
	27	0 5	68		W	60	
	7	1	7		W	10	
D 6 GN	8 5	0 5	81		I	30	
	4	6 5	73		I	30	
	10	5	3		I	45	
	30		13		I	1	
	34	1	1		L	12	
	33	1		1	L	30	
	33			20	I	20	
	32			4	I	15	
	31			68	L	15	
	30			17 5	W	20	
	32	1		18	W	30	
	31			13 5	W	15	
	30		1 5	6	W	20	
	5		1		W	10	
	5		16		W	12	
	20	2	31		W	1	
	8 57	1	44		W	10	
D 7 SS	J 8	8	7		F	60	
	6		71		I	20	
	1		46		I	15	
	5	1	2		I	0	
	55	1	21		F	80	
	5	1	15		F	0	
	49	1	12		I	30	
	17	1		11	E	1	
	47	1		14	F	1	
	15			18	I	3	
	44	0			I	2	
	42			30	I	10	
	42			2	I	10	
	4			31 5	I	10	
	4			30	I	10	
	38			73	E	0	
	3			7	W	20	
	35	1 5		73	W	10	
	33			70	W	1	
	34	8		46	W	50	
	31	1 5		27	W	5	
	9	1 5		17	W	100	

D t l b	II IST	8	L t t d		I b	II ht	R k
			V th	S tl			
1906							
Mar h 7	SS	9 2)	3	13	W	10	
— td		7	05	1	W	5	F t
		25	0		W	1	D bl
		23	4		W		
		21		235	W	20	
		20		37	W	20	
		20	05	39	W	20	
		0		10	W	1	
		17	6	17	W		
		11	1	68	W	70 ±	F t l t g l t l
		14	1	0	W	60 ±	D
D 8	GV	) )	3	5	F	1	I l t l
		7	05	57	I	15	
			(	40	E	50	
		0	4	3	I	0 ±	A h l l } C t d O
		8 0	1	(	J	90	
		50	(	21	J	90	
		40	25	145	E	1	A h l l
		40		10	E	0	
		30	7		E	10	
		8	0	765	F	2	V y f t
			1	7	W	20	
		25		70	W	10	
		2	0	67	W	10	
		9 30	5	475	W	10	l l t d t t l
		2	1	25	W	45	
		2	05	17	W	L w	B g l t } C t d O
		2	2	6	W	2 ±	S t d b y t l l t 10 l g C
		0	15	15	W	30	A t k 7 l g l t h w d f m t t p
		20	25	105	W	30	
				31	W	25 ±	
		15	7	445	W	3	
		0		71	W	1	
D 9	SS	9 10	15	78	E	10	4 l l d 50 h g l C
		8	1	61	I	2	
				4	I	2	S l g l t l y b l t l l
		0	1	38	E	100	l l l
		8 7	25	28	I	60	C t d t t h l t l m t } S l p d f t
							C l l
		53	3	20	I	80	l m b t l t t + l L
		44	1	515	I		C l
		40	2	78	W	20	L m b m l t d f L t - 4 l t - 58 L
		39	05	72	W	0	
		37		60	W	0	
		9 31	2	0	W	5	C l
		27	4	20	W	10	B t l l f t h t l n O
		25	3		W	30	C t l t t l t p m t t l C
		23	0	12	W	3	T p b d d t d t t l t l t l
							l m
		3	5	175	W	35	
		20	1	24	W	20	
		18	25	27	W	25	
		15	1	15	W	5	
D 10	SS	9 12		74	F	25	
		10	35	45	E	40	
		8	15	40	L	160 ±	S n t l
		3	1	245	F	2	
		1	2	22	I	80	C l 90 h g h C
		0	1		F	30	I t
		8 58	1	12	E	10	
		58	15	49	I	25	
		55	1	65	E	25	
		54	1	69	E	10	
		52	1	785	W	20	D bl
		51	2	74	W	30	
		50	1	6	W	10	
		9 27	4	51	W	60	
		23	3	205	W	45	

[illegible]

[illegible]

D t d b		H I S F	B	L t t d		L m b	H h t	R m l
				N t h	S t h			
1906								
M h 16	SS	5 58	1		6	E	20	M t l l
— t z		56			9	L	35	B l t d n d t t h t l m
		54			16	F	40	t p
		0	0		52	l	10	q t g l l t t l d d t l d f m l b
		40	1		56	L	15	
		48			59 5	E	25	
		40			64	F	30	S l d
		49	1		53	—	35	
		40	3		81	W	2	
		35	1		0	W	10	
		9 48	6		55	W	4	
		43	1		21	W	25	S l l t l y b l t t l
		12	0 5		20	W	1	
		40	2		10	W	1	B g l t
		34	1		8	W	35	} B g h t t d t t l
		34	1		6	W	3	
		33	2 5		2	W	20	B g h t
		25	6	22		W	6	S N
		23	0 5	31		W	1	S l t t l w l
		1	5	76		W	70	
		13	0	8		W	25	I t
D 18	GN	10 5	2 5	32		I	75	q p l g l t l y l l O t h U y l
		3	1	14 5		I	20	B l t l n t b t l w d
			1	7		F	20	C l k
		0	1		24	l	30	D
		12			81	l	45	
		12	1		79	W	4	F t
		11	0 5		6	W	12	
		11			38	W	12	
		13	1	1		W	12	
		)	1	14 5		W	15	
		8	0	32 5		W	60	
		5	1	31		W	60	B d t t l } C t d t t l
								S N
D 19	SS	9 11	2	57		I	10	
			(	92		I	100 & 45	O p m w 110 h g h d d n t
		3			7	L	55	O l p f t l t l l y d g
		5	3 5		98	l	30	l h l t n t l
		53	0		14	l	30	
		41	0		80	E	15	
		4	0		83	—	3	
		44	1		82	W	55	
		45			79	W	30 ±	I t l h t l y d t t l
		46			9	W	20	
		46			6	W	25	
		40	0		0	W	30	S l g l t l y b l t t l
		9 43	2		1	W	25	
		41	2		30	W	30	A l t f t t m f l w w t w d l t l
								t r
		40	0		2	W	10	
		38	1		11	W	25	T p b l d w d l y m t l b L t
		34	4	3		W	35	S N t
		3	1	6		W	15	D b l
		31	3	8		W	20	
		29	2	31		W	35	S l g h t l y b d t t l
		7	1	35		W	30	N w p t l
		24		6		W	20	
		22	3	60		W	35	A h t l t k f l w t h w d f t h
								m d d l f t
D 20	GN	8 50	1	37 5		I	20	45 h g l O } O t l t t p O
		50	1	34 5		E	20	
		50	1	38		E	20	
		50	1	23		E	30	S N t
		49		18		E	30	A l d l t t d t l m b b y l l t k
		49	1	10		F	15	
		48	3		10 5	E	15	
		47	1		27 5	E	60	A t k f w h w d f m t l m d l l f t
			0 5		36	F	15	

7

D t n d b	H IST	B	L t t l		L b	H l t	I l
			N t l	S t h			
1906							
M h 23 — t d	10			10	W	25	
	7	05		16	W	5	N t t p
	0			40	W	30	
	5	5		1	W	10	
	52	(	23		W	4	N t t p
	50		4 5		W	45	T p b d l d t l b t L t + 39
	1		10		W	±	M t g t l t l m t t p
	46	15	18		W	50	S N t
	43	1	1		W	3	l b l t l y l t t l w d
	4	1	6		W	10	
	39	05	73		W	10 ±	U l l t f t l l t t w d
	17	0	8		W	3	I t
	3		J		W	120 ±	D t l f l l d l t g t l w d t
D 24 S S	4	1	0		I	30	t p
	43		4		I		
	4		37		L	60 ±	S N t
	8	4	28		I	30	l b l t l t b t l w l l C t d t t p
	3	1	3		I	0	D l y t l l C
	34	1	12		E		
	31	1	10		I	25	I l t l m b t l t t l
	15			49	E	(0 ±	I t
	11	1		60	I	10	
	10	1		83	I		D l l
	6			73	W	5	D t l l f l l l l t t l d p t d t
	5			73	W	60	b t m
	10			0	W	±	V t l d t l l f m l l
	9			8	W	2	V y f t
	0	1			W	4	B h t
	5	05	43		W	30	A t k l l l l t l w d f
	5	05	16		W	90	t h t p
	51		40		W	80	B l t t l
	51	1	2		W	40	I l k
	11		03		W	40	D t h l l l
D 25 G N	10		71		I	5	S l g l t l y b l t t p
	10	1	(7		I	30	
	7	0	31		I	0	} M t t p
		3	2 5		I	0	} S N t
	5		13		I	(0	B l
	1	1		74	I	90	
	0	3		83	I	50	
	1	3		32	W	8	D b l
	16			8	W	40 ±	I
	11	35		1	W	1	C l k B h t
	14		12		W	15	A l l f t t k d t l d f m l m b d
							p l l t t
	14	05	45		W	15	
	14	1	18 5		W	1	
	11	1	01 5		W	35	D l l
D 26 G N	9		78		L	4	
	35	2	71		I	15	D b l
	31	0	46 5		E	1	
	31	05	4		L	2	A t 40 h l C
	31	0	42		E	25	
	30	0	38		F	5	S N t
	30		34		F	1	
	29	0	7		E	20	
	29	05	5		D	20	} C t l C
		05		52	I	15	
		05		53 5	E	15	
	24			80	E	20	
	21	2		6	I	10	
	20				I	5	D t h l l l l
	44				W	1	
	42	1			W	5	S l t g t h l I l m t l m b g t
	40	75		85	W	4	L t — 24 5 W C

D t d l	H I l	B	I t t d		L m b	H l	R m k
			N t l	S t l			
1900							
M h 7 S S	1 13	15	1 48		T L	60 20	F t Al t l b l b t d t t h d f m l m b
	1 8	2 1	10		T L	0 60	D b l
	1 6	1		35	L	2	F t
	3	1		15	L	10	
	0	1		3	L	30	V y f t
	18	1			L	60	F t
	11	0		80	L	0	S l d t l
	11	0		82	L	45	D t h d f m l m b t l t t h w d
	34	0		51	W	0	F k l l
	3	2		8	W	30	
	31	1		1	W	60	B l t b
	33	1		18	W	0	
	32	1		1	W	90	S l t t l w d
	3	15		10	W	40	D F t
	11	0	h		W	1	h t
D 8 G N	10 40 30 3 3	3 1 1 C 5	3 19 12		L I E I	0 20 45 0	B g l t t O
	0	6		535	L	30	
	8	4		39	W	120	U p h l f
	0	1		18	W	0	I t l y l g h t
	70	2	17 18	7	W W	20 20	A l l l S l d t l S N t
D 29 S S	1 7 58 8 2	1 5	( ) 3		I I E	1 20	C l A l t l m t C
	33	1		3	W	30	S l g t h w d
	32	1		15	W	0	l t t w d
	8	1		3	W	35	S l t g t w d
	28	1		0	W	30	
				0	W	0	S \ t
D 30 G V	10 1 10 5 0 28 2	1 1 0 0 05 1	1 31		L P E I	12 3 12	
	0	0		(	W	1	F l w t l t t p
	28	05		1	N	0	
	2	1		8	W	1	
	3	1	11		W	1	
	14	1	18		W	3	
	1	0	32		W	2	F l w d t p
	1		44		W	1	
			7		W	15	
D 31 S S	0 7 5 1 18 1 3 1 30 25 27 18 18 1	05 1 15 0 0 05 05	1 8 40 3 1		I I I I E L	10 0 0 5 10 1 10	F t d l d f m l m b S l t t w d F t S N t l D b l S l h t l y b l t t p
	3	05		51	W	25	F t
	30			74	W	10	
	25	1		66	W	0	
	27	1		815	W	25	
	18	1		28	W	30	
	18	2	11	14	W	2	M t t h t p t t p
	1	1	115	10	W	80	S \ t
			19	8	W	1	



D t l b		II IS I	B	L t t l		mb	II l t	R m k
				N t h	S t l			
1906								
M h 31	S	9 12	1	28		W	0	} C t l t l F t C
— t d		1	1	30		W	0	
			1	70 5		W	5 ±	
Ap 11	GN	8 40		30		I	5	} C t d t b
		39	1	32		D	30	
		30	4	30		E	1	
		39	4	6		E	1	
		37	2	17		E	12	
			1	7		L	15	
		3	1	1		I	1	
		34			24	L	1	
		34			2 5	F	1	
		30	1	78		D	0	
		31		0		W	0	A l l l
		30	5	(4 5		W	70	l l t l t l t l t l y d d C
		2		8		W	45	B l t l
		2	1	5		W	30	C t d t t l t l t l m O
		5	1	1		W	1	
		2		2		W	1	
		51		18		W	1	
		1	4	27		W	50	
		46		39		W	35 ±	Slightly b l t l
D 2	SS	9 8	1	78 5		I	1	
		25	0 5	7		I	60	
		1		01		D	0	A l t f t t l t t l l f l b l
								l l l l t
		15		42		I	1	
		13	4	3		L	35	
		10	1	18		I	10	C l l l l (0 \ l) l t w y M t l l
		6	1	14		F	50	M t l l
				0		I	20	
		2	1		0	I	20	
		8 1	0	71		W	50 ±	B t
		4	0	0		W		
		9 6		40		W	1	
				3		W	0	Slightly l d g t w l
		54	4	31		V	30	
		58	1	25 5		W	20	
		0		11		W	20	D bl
		48	0 5	9		W		
		48		8		W	15	
		47	1	11		W	30 ±	l w l d t l t g t t p
		16	0 5	14		W	20	
		4		17		W	10	
		4	3	1		W	20	A l l l
		38	10	3		W	0	
		32	8	69 5		W	00 ±	I
D 3		9 7	1	16 5		I	35	} C S N t
		7	0 5		10	V	20 ±	
D 4	SS	9 2	0	83		E	40 ±	} V y f t D Slightly l d t t p
		22		82		E	60 ±	
		22	0 5	79		I	60 ±	
		2	0 5	7		D	60 ±	V y f t
		17		58		L	50	A l t
		18		46		E	25	
		11	3	40 5		D	2	
		10		24		F	10	
			2 5	19		D	00	M t t h t p m t t p
		0	0 5	12		I	80	Ab t 7 b d t t p T l k
		8 58		9		I	5	Slightly t d
		50	1 5	1		E	10	
		51				F	75 ±	D bl f t f g m t y
		48	1 5		21	L	20	
		46			35	F	20	D bl
		4			62	E	25	
		40			74	E	40	Ab t 2 b d but d t h d f l m b

D t d l	II IS l	B	t l		I b	II l t	R l
			N t l	S t l			
190							
Ap 1 4	SS	10 10		61	W	1)	D bl
— id		8		61	W	0	
		9 46	1	13	W	2	Γ t
		1	15	39	W	0	
		46	1	91	W	25	B d t t p
		1	1	C 5	W		
		14		24	W	5	D t h d t l m b t g t h t p m
							t l
		42	5	11	W	10	
		10		1	W	0	
		39	0		W	30	
		37	5	17	W	0	
		3	1	34	W	2	
		1	25	40	W	0	
		30	05	(7	W	35	B d d t t l
		8	0	7	W	0	Alm t l t l l f l b
		7	1	78	W	20	D bl
		25	05	805	W	0	
			05	8	W	5	V y f t
D 6	SS	9 0	1	37	I	60	I t l t t t d
		8 78	15	21	I	40	B l t l t g t w d
		58			D		Sl g t l w l
		16	1	74	I	(0	V y f t
		10		75	W		
		39	15	72	W	20	D l l
		9 31		23	W	90	y f t f l l l
							t h d f m l m b
		31	0	17	W	10	
		1	0	13	W	10	V t t I
		30		21	W		A l t b n
		9	15	7	W	0	D
		7	05	37	W	(0	
		18	0	1	W	20	
		11	05	74	W	20	I t l t t t l w d
							S N t
D 7	GN	8 30	1	50	I	10	C
		38	1	39	I	3	
		8	15		F	60	
		3	1		I	60	
		15	5	18	W	0	
		44		26	W	0	
		43	1	31	W	1	
		10	1	365	W	30	
		40	1	385	W	30	
D 8	SS	9 22		81	I	10	A y f l d t l l f m l m b
		16	05	56	I	1	
		11	05	47	I	30	I t
		10		10	I	10	
		2	2		I	40	
		0	25		I	0	C l l
		8 7	15	8	L	3	
		57	2	1	I	20	
		55	05	0	I	20	D bl
		53	1	30	F	10	V y f t
		44		77	W	3	B l t t p
		10		71	W	50	( l l
		9 45	1	C 9	W	0	
		48		51	W	20	
		10	0	165	W	30	
		38		9	W	20	
		36	2	8	W	2	C t d t t l t l m by t k t
							t I
		36	55	15	W	40	
		35	2	215	W	8	
		30	5	285	W	60	I p f b t 5 t t h w t
D 9	GN	8 57		84	I	80	
		56		82	E	50	I t l l f m l m b l d t l
		56		80	W	45	

D t d b	H I s r	B	L t t l		I b	H b t	R k
			N l	S t h			
1906							
Ap 1 9	GN	3 5	57		Γ	0	
—	td	54	51		E	00	
		4	45 5		Γ	60	
		19		7	I	20	
		15		33 5	L	70	B d t t p
		44		15 5	E	15	
		12		61 5	D	15	
		40		05	Γ		
		6		75 5	W	35	
		3		07	W	0	
				52	W		D bl
		9		44	W	20	
		1	28		W	50	\ y f t O
		0	34 5		W	30	Sl htly b d t t p
		8 9	05	15	W	12	
		58	1	78	W	20	D bl
D 10	SS	0 31	98		E	80 ±	F t d t l l f m l m l
		30	81		F	30	
		28	01		F	20	D l l
		27	58		Γ	15	
		7	50		I	2	
		0	5		I	150 ±	N t 1
		12	C		I	00 ±	S \
		11		14	L	50 ±	S N t 3
		11		18	D	5	
		7		24	Γ	90	T m t l m b g t L t 27 E
		0		32	Γ	120	S N t 4
		8 6		35	Γ	1	D t l l f m l m l l t g t h w d
		51	1	2	Γ	20	
		3	2	6	F	20	D bl
		0		(	E	15	Γ k l k
		48		78	Γ	2	D t h d f l m b
		43		75 5	W	55	S N t 5
		9	1	55	W	3	
		54	05	50	W	4	B l t t p
		0	15		W	15	
		47	15	10	W	15	S N t 6
		45	1	13	W	20	
		43	8	22	W	0	
		40	2	31	W	4	
		38	1	38 5	W		
		30		48	W	15	A l t t k l t h d f m l m l d p a r l l t t
		33		69	W	20	
D 11	SS	9 1	81		Γ	3 ±	Γ t
		15	8		I	45	
		12	08		Γ	15	
		1	71 5		E	20	
			6		I	70	S N t 1
		1	10		I	0	S N t
		9 59	10		Γ	0	
		57	3		D	30	M t
		19	3		D	30	T p l l d f w t w d l t 3
		24		7	Γ	2	S t 3
		16		29	F	70	
		3		33 5	E	1 ±	C
		44		3	F	50	S N t 4
		4		50	E	30	D t h d f n l m b
		40	2	54	E	1	
		39	1	67 5	E	15	B g h t
		36	0	82	E	35	
		34	2	80	W	60	
		32		78	W	60 ±	B d t t p
		31		76	W	±	
		31		74	W	20 ±	F t V y f t O
		28	35	54	W	50	
		9 35	15	9	W	15	S N t 5
		33		11	W	15	
		32	1	8	W	20	T p b t t w d h t l + 10 12
		5	2		W	3	S N t 6

D t nd b	H I l	B	L t d		I nb	H l t	R l
			N h	S tl			
1906							
Ap l 11 — t d	SS	9 6 1 1 18	33 3 5 75		W W W W	30 0 30 50 ±	F t } F t C
D 1	GN	8 1 40 37 37 31 11 30 7 ( 5 0 1 10 8 5 5 40 28 4 1	( 1 1 15 5 10  19 82 78 8 75 (25 515 J 8 2 9 12		Γ Γ D L D Γ D Γ W W W W W W W W W W W W	8 0 0 20 10 2 0 50 15 15 45 1 60 10 10 30 ± 30 ± 1 30 ± 0 0	A l l k f t Γ t } B g l t S l t t l w l l l l d d b g h t  S N t l Γ l m t l N w t t l } M t t t p F t S N t C A b t l b d p t b S l g h t l b l t l
D 13	GN	8 29 2 20 1 12  31 36 36 36 3 34 3 30 30	0 1 6 7  4 16 b 18 205 22 20 37 19 76 77	25 13  31 7 505 3  4 16 b 18 205 22 20 37 19 76 77	1 J W W W W W W W W W W W W W W W	0 12 3 45 60 90 ± 90 ± 60 60 15 35 15 0 ± 80 ±	N t h l g l t l y t l l C Γ t f l m t l S l l t t l N t t p S N t l S N t } I t l y b h t  Γ t S t l g h t l y b l t t l
D 14	SS	6 5 5 17 47 46 4  40 40 10 37 6 31 8 20 5 28 20 19 18 18 16 14 13 10	05 2 1 05 2 4  18 12 11  3 1 1 1 15 05 05 05 1 15 05 05 1 15	8 79 30 25 5 1  18 12 11  1 45 11 72 79 1 81 83 82 80 7 765 75 59 58 55	Γ F E L E J  E E D E E F L E l E W W W W W W W W W	60 25 15 15 10 0  0 1 2 5 15 40 100 15 25 45 50 40 45 10 55 2 35 140	D b l  L t d f t l t l m l g L t t + 165 E T l t w f m l t p m n 30 } l g l d l t g t w d O Γ l l S l t t t h w d  Γ l l S l t w t w d b t l l t t w d

D t d b		H IST	B	L t t l		L m b	H t	K m l
				N t h	S t h			
1906								
Ap 1	14	SS	9 5		8	W	0	Sl t thw d Sl ltl b d pt
—	td							b
			3	3		W	30±	Sl t g tlw l
			22	6		W	10	
			0	14		W	0	
			19	24 5		W	5	S N t
			17	34		W	70	
			14	41		W	20	B g l t t t p
				7		W	30	T p b d l t th t l
				80		W	70	l l l
			5	84		W	35	
D	15	GN	3 5	78		E	20	r t h l f m 3 f l gh C
			8 46	8		E	1	D bl
				39 5		E	L w	80 hgl C
			45	30 5		E	30	N tl d t t m t f t
			43	7		E	12	
			43	2		E	15	
			41	10		E	50	
			40		17 5	E	1	
			37		27 5	E	0	
			39		31	E	20	
			36		65	E	20	
			36		81 5	E	50	
			36		8 5	U	15	
			35		83	W	40	
			35		82	W	5	
			3		7	W	40	r k l k t t l
			30		59	W	3	
			30		56	W	60±	D t h d f l m l
					7	W	2	F w t
					5	W	35±	S N t
			35	33		W	60±	l m t th l t l m n
			55	37		W	50±	
D	16	GN	8 23	73		r	35	N t t l
			2	58		D	12	
			22	5		E	12	
			20	3		I	55	S N t l
			20	28 5		r	55	I t l l f l t
			14	20		I	20	M t h l t l t t l
			14	13 5		L	20±	C p m 2 l d
			10		3	r	15	
			6		11 5	F	1	
			6		18 5	D	20	
			5		27	L	60±	A t t t k l d tlw d f m th
								l i l
				35		D	50	A f t g l h
			0	44		E	3	
			0	47		E	12	
			7 58	77		W	60±	l l l l y t l th l m b t t w
								p t
			56	66		W	30	
				43 5		W	20	
			8 32	37		W	35	r t
			32	35		W	60±	F t D t l d f m l m b
			31	8		W	30	b t f l m t l
			30			W	60±	S N t 2
			27	35		W	25	
			25	43 5		W	20	
			24	75		W	30	
			24	83		W	35	Sl d t l
D	17	SS	9 30	71		E	75	D bl E t h H f nt
			8	59		F	10	
			24	41 5		E	40	
			21	33		E	3	A l l k } C t d b y f n l l d t t p
			16	24		E	15	C t d b y t k t th n t p m

D t lOb		II IS I	B	L t t d		L b	H l t	R l
				N t l	S t l			
1906								
Ap 1	17	SS	9	16	1	19	E	15
—	td			16	1	17	I	4
				16	1	15 5	I	30
				11			I	15
				)			I	5
						13	I	20
						0	I	70
			2			20	F	70
						5 5	I	70
						30	F	70
			1			34	I	70
			8	53		39	I	70
				(		18	I	80
				1		11	E	30
				2	0 5	54 5	F	1
				1		5	I	20
				11	1	(	I	1
				15	3	71	W	30
				33	5	7	W	0
				3		41	W	15
				30		32	W	15
				30		31	W	0
			)	1		11	W	70 ±
				0		9	W	30
				48	1	1	W	0
				43	(	30	W	0
				38	4	43	W	0
				33	1	77	W	30 ±
				)		90	W	10
D	18	GN	)	4	1	74 5	F	3
				0	5	( ) 5	I	0
			8	8	2	41	F	60 ±
				F	2	21	I	30
				53	1	30	I	0
					2	10	I	0
				2	1	9	I	20
				2		8	I	1
				1	4 5		F	0
				0		11	E	15
				47	1	4	F	12
				40	0	47	I	15
				11		4	I	12
				13		83 5	W	15
				10	1	80	W	110 ±
				38	1	71	W	20 ±
			)	18	1	38 5	W	30
				1		21	W	1
				17		9	W	45
				1	2	12	W	40
				10	7	8 5	W	4
				10	1 5	3	W	30
				9	1 5	13	W	5
				6	4	81 5	W	4
D	19	SS	8	55	0	76	I	50
				(	1	70	I	60
				55		61	F	15
				4	0	63	E	10
				3		5	E	15
				1	1	13 5	E	20
				49	( 5	38	E	25
				49	0 5	34 5	F	5
				4	5	18 5	E	0
				44	2	5	E	10
				48	2		E	0
				4	0 5		E	0

D t n d b	H I S T	E	L t l		L m b	H h t	R l
			N t l	S t l			
1906							
Ap 1 19 — 12	SS	8 40 35 3 3 32 30 20 5	15	13 18 43 47 66 705	E E J L E E E W	35 10 0 80 30 0 15 10	Sl t t l w d } C t l t t p f t d F t } 100 h l n O  Γ t Upp l l w l t d t l l f l t l O
		5 6 5 3 2 1 18 15 13 1 10 7 1	05   15 05 15 1 0 15 15 0	(1 5 3) 355 32 21 18 2	W W W W W W W W W W W W	1 15 40 30 1 30 ( 50  3 0 0 30	   D bl  } I p t l l y f t l n l t l  T l l t h l f l w p t (l k g p d l y B d t w d l t p Sl t g w t l
D 20	GN	9 1 15 1  5 2 2 0 0 8 56 54 4 9 2 20 5 22 20 20	0 4 1 4  0 0 3 1 1 7 1 4 0	76 71 66 2 16  18 0 86 71 675 6(5 60 5 40 28 2 14 18	Γ F E F  Γ L E F Γ W W W W W W W W	1 30 20 0 60 1 1 3 35 1 15 7 0 30 1 75 5 1	   Γ p t l b g t L t + 64 5 l A h l l w t l l w p m d th l 0 l h O  D l l  D bl C t 100 l g l C
D 21	SS	8 57 50 54 51 49 47 14 43 39 37 3 26 41 41 41 41 41 9 25	1 1  1   05 0 2 15 1 2 2 25 15 1	3 67 465 9 19 10 9  3 47 86 1 58 435 30 9 5 15 31	E Γ F F I I I E l F Γ W W W W W W W	40 20 20 20 30 7 7 1 1 30 2 40 20 30 30 120 1 120 3	  C l g h O 2 l l t l 30 l g h } C t d (
D 22	GN	9 6 5 3 2 0 0 8 58 56 55 52	15   1 1  15 15	78 4 61 46 25 215 175 9  19 29	Γ E L L L E E E E E L	30 30 20 25 20 20 80 12 30 20	  Sl d   B d t t p 65 l g l O Sl d D t h d f m l m b

[illegible]



D t d b	H IST	B	L t l		L l	I l t	R l
			N th	S th			
1906							
Ap 1 24	GN	9 21	15	40	W	60±	D bl 3 b l t b C
— t d		19	1	9	W	12	
			05	17	W	15±	
		16		1	V	16	
		18			W	30	
		14	3	37	W	40	
		10	2	41	W	1	
D 25	SS	9 17	2	73	Γ	30	
		16		68	I	6	Sl l t l
		16	1	66	I	10	
		13	3	17	Γ	7	
		10	0	31	Γ	70	S N t
		7		3	E	1	
		7		19	F	1	C t d b
		7		1	I	15	
		2			Γ	5	F l l k t t p t
		8 9	3	16	I	90	T l k Γ t
		7	1	105	F	80	
		51	2	1	I	15	
			1	4	Γ	4	
		1	1	J	I	30	
		49	1	80	I	20	
		38	0	78	W	30	Γ t
		3	05	41	W	40±	D
		34	05	37	W	2	D Sl g l t l d t t l
		3	0	2	W	40±	D
		32		18	W	0±	Γ t M t g t t l
		31	1	1	W	0±	
		29	1	1	W	20	
		9		0	W	20	
		27			W	30	
			1	115	W	40	
		5	1	7	W	20	
		22	1	295	W	0	
		20	1	375	W	1	
			1	73	W	40	
Ap 1 27	GN	8 31	1	61	I	30	O
		12	1	1	I	12	D bl
		11	05	18	E	15±	
		10	05	11	F	1	
		8	05	74	L	0±	1 p l l l g t w l
		33	1	75	N	15	
		31	1	125	W	60±	C p m l g h t l y b d
		30		7	W	15	
			05	15	W	30±	
		9	1	05	W	20	
		29	35	27	W	30	45 l h C ( t d t t h t p m
				30	W	40±	S N t
D 28	SS	9 13		73	F	75±	l p l g h t l y l l l v f t
		13	1	70	E	75±	S l g h t l y l d O
		10	1	30	E	25	C l k
		7	13	25	F	2	
		3	8	3	Γ	25	S l t d t t l
		8 57	3		E	35	
		55	1	535	L	30	
		47		585	D	0	F n t
		46	2	65	I	40±	D
		41		74	F	15	
		41	05	765	W	100±	F n t b d t l
		9 35	15	79	W	30	40 l g l (
		8 37	3	57	W	30	
		35	3	50	W	25	
		32	15	45	W	30	B g l t t t p t l t b
		28	1	14	W	90	g b g l t l l l
		25	45	0	W	50	B g h t
		9 29	2	12	W	20	
		27	4	30	W	60	S N t

D t l b	H ISL	B	L t t l		I l	H l t	I m l
			N u l	S t l			
1906							
A l 1 9	SS	3	24	12	1	80 ±	Fl p d f t O
		3	12		1	40	
		1			1	25	
		2			1	30	
		2			1	1	A l t g t k 80 l l l d f mtl mddl
				92	1	27	f t t l t l
				80	1	30	
		0		71	W	0	
		2		33	W	30	N w l t l
		0		31	W	1	
				28	W	1	
				(	W	130	S N t l
		17	2	13	W	1	
		1	0.5	1	W	17	
		16	2		W	20	
		1	1	10	W	10	
		1	0	10	W	0	
		13	(	7	W	3	Sl t h l w d
		11	(	7	W	0	
		5	1	80	W	0	l t d t t p
		2	84		W	10	S N t
D 30	GN	8	75	0	1	0 ±	
			1	37	1	30 ±	
		5	0	31.5	1	1	
		72	0	33	1	15	
		(	0	4	1	1 ±	
		4	1		W	0	Sl t g t l w l
		2	(	13	W	3	( ) t d t t l l t l m l (5 h l
		(	4	1	W	10	S l t l t l t m th n O
		8	1	31	W	0	S N t
M y 1	SS	0	1	50	1	0 ±	
		3	(	30	1	0 ±	
		8	7	17	1	0 ±	
		7	2	12	1	0 ±	( l l
		(			1	8	
		1		4	1	0	
		13		51	1	40	D t l l l l l t t l w d
		3	1	86	W	1	
		1	0	0	W	0	
		3	1	31	W	20	
		3	2	21	W	2	
		23	1	11	W	70	
		24	1	2	W	7	
		6		9	W	0	B d t t l
		21	4	11	W	27 ±	S N t
D 2	SS	8	38	1	1	1	
		7	15	1	1	0	
		6	(	33	1	1	
		29		27	1		( l l l l l t f L t +18 E
		71		0	1	37	
		2		10	1		
		1	1	11	1	0	
		4)	15		1	0	
		40		4	F	15	
		44		4	1	10	
		44	1	55	F	40	B l t
		42		88	1	0	
		40	0.5	78	1	15	
		39	2	84	F	10	
		37		08	W	10	
		37	0.5	15	W	10	
	9	5	2	4	W	30	
		24	0.5	42	W	25	
		24	0.5	40	W	15	
		20	0.5	21	W	10	
		20	1	18	W	20	

D t d b	H I S T	B	L t t d		I b	H l t	R k
			N h	S t l			
1906							
M y 2	SS	0 1		4	W	30	
— t d		3	315		W	90	} C t d t t p by C
		9	41		W	10	
		6	9		W	4 ±	
		3	71		W		V y f t t l k
D 3	GN	1 1	7		I	2	
		48	125		I	±	
		14		1	I	±	
		14		27	E	20	
				45	F	1	
				(05	D	30	D 11
		25		82	I	35 ±	
				84	I	3 ±	
		1		45	W		N t t p
		1	25		/	4	
		15	9		W	15	S N
D 4	GN	8 25	53		I	10	
		2	5		F	1	
		2	05		I	20	
		1	2		I	35	
		21	3		I	20	I t l y b g l t t
		19	05		E	0	I t D b l
		18	1		I	15	I t
			2		I	1	
		16	7		I	20	S N t 1
		1		57	I	3	
		15		605	E	30 ±	F t
		13	1	7	I	12	D 11
		1		9	I	1	S N t 2
		11	05	90	I	20	n b l
		10		75	W	30	D t l d f l b
		10	05	70	W	10	D 11
		10	0	68	W	1	
		32	1	175	W	1	
		32	2	45	W	80	
		90	1		W	1	
		2	18		W	2	
		26	1		W		I 0 l g l C
		2	27		W	2	
D 5	SS	9 51	49		I		C 11
		46	11		L	0	M t l l b M b d N l l t l ly
					I		S l t g t w d C
		43	8		F		B 2 b d C } M t g t t p C
		4	5		L	5	
		8)	35	21	I	30	M t l
		36		1	I	30	B l t t p C
		32	3	57	I	(0	
		30		62	F	30	
		7	1	0	I	1	
		24	25	15	I	0	N w t t l } M t l l
		2	1	7	I	4	
		18		8	W	45	I t 60 h h C
		16		74	W	30	
		17	1	485	W	30	B d t t
		9	05	445	W	30	S l t t h d
		15		8J	W	10	
		14	15	2	W	15	
		22	3	25	W	15	I t
		11			W	1	
		10	05	7	W	25	S l t t h d
		9	5	15	W	5	
			1	38	W	20	
		3		375	W	30	D t h d f m l m b
		29		40	W	15	
		0	05	46	W		B l t t l
		8 50	3	735	W	20	

D t d b	H I S L	B	l t t l		I l	H l t	l m l	
			N t l	S t h				
1906								
M y 6 S S	9 (	2	7		1	30		
	8 5J		7		1	10		
		15	18		1	50	P t l t t l	
	6	0	42		1	30	R t	
	52	1	11		1	1		
	51	1		1	1	0		
	49	2		18	1	30 ±	R t	
	47				1	0		
	4	2		11	1	40		
	14	1		0	1	(		
	42	15		55	F	2		
	4			7	1	4		
	39	1		(	1	10	B ght	
	38			71	1	30	S l t t w d	
	37	35		98	E	1		
	35	15		8	W	60 ±	v y f t S l t w t w d d l g h t l y	
							l d t t l	
							S l t w t l	
	D 7 G N	32	1		3	W	0	
		9 18	05		0	W	30	
17				48	W	7		
13		1		8	W	40		
10		15	J		W	10		
)		1	1		W	30		
		4	(		W	40		
8 7		5	30		W	L	C l k M t C	
							O	
9 1			92		1			
1		05	(3		E	1		
0			2		1	12		
8 58		1	)		1	15		
58		15	0		1	15		
5(		0			1	30		
58		05		5	F	30		
2		05		15	1	20		
51		5		21	F	35		
10		0		)	F	10 ±	B l d l t t l 3	
48				1(	1	0		
18			0	1	1 ±			
4			54	1	60 ±	A d l d l d l t		
D 8 S S	1			(0	E	3		
	41	1		75 5	1	30 ±		
	11			78	1	1		
		1		5	W	1		
	9 10	25		10	W	110 ±	A l l g	
	8	17		3	W	20		
	6	0		18	W	15	C t l l y t l t p	
	8 40			8	W	(0	C I t	
	9 4		8(		1	10	l t	
	)	1	83		F	15	D	
		1	4		1	10		
	8 56		50		1	5	S l t t l w d	
	6	05	7		1	30		
	)	1	21		E	25	B d t h l l l	
	51	1	05		F	2	l l t l b t l l + 6 E	
	48	2		11	1			
	22			17	1			
	1(	15		9	L	7		
	49	1		82	1	10		
1			36	1	10			
41	15		40	1	45	T l l t t l w l 8		
10			48	1	0	A l t l d l g t l l d l t		
97			2	1	110	D t l l l l l B l t t p		
31	8		81	1	0			
30	0		82	W	1)			
9 32	2		1	W	0	S t t l		
30	25		39 5	W	0			
8	1		18	W	40			
6			9	W	25			
24	2	14		W	5			

D t d b	I I S T	B	I t d		L b	H ght	R m l
			N tl	S tl			
1 06							
M y 8 — tē	SS	9 23	15	1	W	20	C D t l l i m b D bl C l htly l l l t d t b 5 l gl C 9 N t 2
		2	0	(	W	80	
		1	3	9	W	20	
		16	3	125	W	30	
		17	1	155	W	30	
		1	1		W	0	
		13	1		W	25	
		9	15	(6	W	80	
		5	81	4	W	30	
					W	20	
D 9	SS	9 58	0	80	L	70±	V y f t
		58	0	91	I	30	
		53		27	I	40	
		52	2	19	I	20	
		4		13	I	100	N t
		44	1		I	20 t 5	
		40	0	225	I	20	F t
		31	1	3	I	2	
		38		30	I	30	
		35	1	13	I	1	} Sl t t l l
		34	1	45	I	80	
		31	2	69	I		D l l
		3	4	81	I	0	
		30	05	8	—	10	
		20	05	7	W	±	
		28		3	W	1 ±	Sl t l y l l t t l
		9 5	5	545	W	55 ±	
		2		41	W	20	
		21	1	1	W	5	
		20	3	1	W	20	A l l l } Al t t d t l C
		15	2	12	W	30	
		14		10	W	20	Sl t l w d
		8 1	15	8	W	±	C D
		9 1			W	30	
		J	1	65	W	5	Sl t t l l
		i		(	W	60	C l l A l l f t t l w l
							w d f m t h t l
		1	1		W	30	A g l l
D 11	SS	) 6		81	I	15±	l t l t t d t l l f m l m l
		3		5	I		C l g l l y d l l l l y N p m
		8 58	3	30	I	0±	
		31	1	6	L	1	l t
		30		17	I	1	Sl d
		27	05		F	2	
		4		9	F	(0	Sl t l l l
		2	05	51	L	4	
		20	05	60	D	10	D bl
		15	0	83	I	5	
		15	15	8	I	5	
		13	1	885	L	20	} Sl t l l l
		9 5	1	5	W	70±	
		3	2	3	W	0	
		21			W	2	
		21		3	W	20	
		20	1	4	W	0	
		19	1	95	W	50±	
		18	1	2	W	20 Δ 15	
		5	1	20	W	1	
		1		52	W	15	Sl d
		10		88	W	30	Sl d d t l d f m l m b
		10	1	64	W	2	
		9	05	60	W	30	l l l l S N t
D 12	SS	9 42	1	86	L	25	
		40	05	805	E	30	
		38	05	585	E	25	
		36		3	E	15	Sl t t l w l
		34	15	80	I	70	S N
		31		26	E	30	F t

[illegible]

[illegible]

D t l b	Il IS I	B	I t i		L i	H ght	l m l
			N t l	S t l			
1908							
M y 17 S	S 49		81		I	2	
	48	10	4		I	10	
	15		5		I	15	
	13	10	46		E	60	
	11	1	37		L	10	B d t b C
	38	10	2		L	30	} O t l i t l O
	38	10			I	30	
	38	10			I	30	
	31	10	1		I	30	} I t
	30			35	F	10	
	8	7		31	I	5	I t
	5	20		115	I	0	
	3			50	I	0	
	20			5	I	0	
	1			805	W	1	
	1			95	W	0	I t
	9 11			595	W	15	I t
	1			17	W	20	
	10	40		25	W	10	
	)	10		145	W	25	N t i l O I b l y l t l 15 t k
	8 20	0			W		I t
	9				W	10	
	6		16		W	0	
		60			W	2	
		15	31		W	10	V y l ght
	(	0	50		W	2	
	8 3	25	7		W	2	
	52		7		W	30	
	51		57		W	0	I t
D 18 SS	9 3		87		I	70	
	1		43		E	0	
	9		73		E	70	S N t 1
	)		77		E	70	
	0	30	8		I	1	} O t d t b
	)	10	4		I	100	
	8 58	15	19		I	40	I l l 1 t l 4
			7		I	95	
	2		45		I	20	I t
	49	10		( 5	I	10	
	47	60		17	I	10	
	13	1		77	F	2	
	40			(	W	30	
	3	15		25	W	2	
	31			21	W	70	S N t 2
	30	10		15	W	30	S N t 3
	2	20	10		W	10	25 l l t 9 l Om
	25		135		W	10	D t l d f m l b
	2		145		W	15	
	2		18		W	15	
	22	10	23		W	30	
	20	50	34		W	40	S N t 4
	9 15	30	785		W	50	
D 19 SS	9 6	50	80		E	210	C T p t t l
	18	1	55		E	10	D bl
	16		205		F	20	
	1		10		D	80	D bl f t l y C O
	10	05		13	E	35	S N t
	9			15	I	15	
	6	70		255	E	30	M t l l V y b g l t O d 40 n h g l t
	2	10		415	E	20	
	0	30		49	D	40	V y b h t O d 55 n h g l t
	8 57			70	F	10	
	9 51	10		60	W	20	V y f t H b t g O
	47	0		23	W	20	
	45	20	7		W	30	
	43	50	145		W	15	
	41	10	23		W	15	



D t d b r v		H I S I	B	L t d		L b	H h	R l
				N th	S th			
1906								
M y 19 — t d	S S	9 39	0 5	8		W	25	
		35	0	42		W	50	B d d t l l C
		6	10	74 5		W	1	C
		18		78		W	40	B t b C
		6		82		W	45	O
D 20	K V S	8 29		8		D	1	O
		20		55		E	1	O
		29		48		E	15	C
		29		38		I	1	O
				27 5		E	L w	
		9		1		L	20	C
		5		6		L	15	
				1		L		
		29				I	0	A h l l l t d t h i m w t h
		52			11 5	D	20	C t l l t A t l t l t j t h l l m t d
		51	2 5	16		I	L	O b f l l t l t l b w t h t w p m
		17		1		E	20	
		45	10	6 5		I	20	
		45	40	30		D	40	
		40		78 5		W	0	
		22	5 5	17 5		W	5	
		18	10	10 5		W		
		J		9		W		C
		13	0 5	19 5		W	3	F t
		10		4		W	50	D t h d f m l m l
		5	50	78		W	40	
D 21	S S	8 1		77		E	15	
		47		28		D	30	
		4		18		I		
		43		14		I	20	
		40			10	D	60 ±	
		38				I		
		38	0	18		I	0	
		30		30 5		I	5	
		0		77		W	5	
		9 0				W	25	
		14				W	0	
							45	
		10	11	1			20	
		7				W	2	
		4		16 5		W		C l l l d l g l y t d i m
D 22	S S	8 8		35		W	40	
				13		W	0	
		8 4		51		I	5	
		11		18 5		E	30	
		3		11		I	40 ±	S N t
		3				I	10	
		31		13		I	30	
		)	30	18		E	50	
		(		13		E	10	
		21		85		F	0	
		20	10	77		W	50 ±	
		9 21	15	92		W	25 ±	
		9	30	27		W	0	
		8 45	70	14 5		W	15	O
		9 6	5	6		W	0	P b b l y w g l y t d f t l l
		8		7		W	30	D t h d f m l b
		1	2 5	1		W	30	
		8 59		17		W	30	
		58	20	1		W	10	
		57	20	25		W	0 ±	T l t h p m t O
		54	60	30		W	0 ±	
		45		7		W	3	
		45		79		W	5	



[illegible]

D t l b	H [S]	B	L t t d		l	I l t	R k
			N t l	S t l			
1908							
M y 29 — t d	G N	8 31 32 3 7 5 0 5 5 1 1	1	45 8 10 6 27 14 30 5 45	F I I W W W W W	15 30 35 40 ± 0 5	Slightly t l l d b d C  15 b d t } t l t t h t l t l t l t p m t h t p m Hyd g O l p m t h t p m 45 l l C
D 30	K V S	11 0	15	3 5	W	30	N t t p S N t
D 31	G N	9 2 5 25 14 10 38 38 25 35 3 30 )	0 15 15 1 0 0 1 0 1 1 1	9 7 6 3 1 8 2 7 6 71 89 80	I I I I F F E I I I — W W	40 15 35 ± 40 ± 20 20 1 70 1 1 1 30 50 ±	C S l n t t w d C S l t t l C  2 l l C O P t d t t l D b l  A l w l t l f m t b t L t + 9 W O l l l C
Jn 1	G N	9 0 8 37 57 7 56 56 60 15 1 1 11 8 7	1 1 15 15 1 3 1 0 1 1 2 15 3 15 3	78 72 18 145  18 2 5 31 7 44 28 5  13 5 23 28 3	F I I F I I I I I I W W W W W	L 40 1 0 12 10 20 ± 15 ± 12 40 ± 1 20 1 10 60 ± 0	A l t 5 l l C C V y f t S l i g t l w l  S N t l S l t l t h w l S N t
D 2	G N	8 16 18 39 1 3 36 30 16 44 43 11 1	8 3 05 2 10 05 1 5	6 41 5 33 5 5 17 3 1 6 19 5 3	I F I I E L F W W W W	3 10 80 20 ± 0 I w 50 20 0 30 0	C Slightly l d t t l C C l l l l C p 70 l h l t f t y d C p m l h l l l t h t C D l l C
D 3	K V S	11 5 10 0 1 45  30 28 28 28	1 2 1 45 2	41 16 11  17 5 52 20 5	E F E E  E W W W	L w 30  0 ± 50 40 90	F t T p t d b y t l C T p b l d l m t l l g t I t — 18 E C S l t t l w d S N t l

D t d b	H IST	B	L t t d		L b	H g l t	R k
			N h	S th			
190							
J 3 KVS	9 8 11 20 15 12 1 10	2 1 15 1	0 6 145 29 3 58		W W W W W	5 15 10 15 15	C A l t l d t l l f m l m b I l l l t t k t t t l V y t S N t 2
D 4 GN	10 0 19 12 8 26 5 24 9 10 23	2 4 1 15 15 0 05	18 85 38 50 18 10 10 12 1		E F E I W W W W W	20 30 50 45 80 40 20 40 35	B l t t l S l t g t l d I t l y b l t t ( d l l d l l t y t d
D 5 GN	8 3 21 35 3 3 21 34 21 31 30 27 25 21 21 21 21	15 15 1 05 05 2 0 2 0 05 05 1 05	98 30 16 13 9 95 10 30 53 57 76 80 80 53 18 10		F I F F F E E F L F L W W W W W	1 10 15 25 15 1 0 10 50 40 25 30 1 5 30 30	I t t t d l g l O S N t l S N t I t l y b l t O 5 l l O I t C C C C T l l } t l l b y l l w l l l l t l t 12 W
D 7 GN	9 0 5 40 24 25 23 23 2 8 57	1 1 2 1 15 15 2 3 1	87 55 69 545 6 1 195 24 8 46 84		F E W W W W W W W W	30 15 12 15 45 20 15 12 40 15 35	S N t 3 C I g l t l b h w y f m l l l l f t d t l m b t L t + 8 k W B l t t p } l y O t d t t p b y C p m l b l l b t t 0 l g l C I t l p f w l t 3 t W
D 8 GN	10 8 8 9 6 10 5 8 57 9 55 9 20 10 19 10 9 9 9 15 15 15	1 15 1 05 1 15 15	88 86 10 185 355 49 685 705 6 9 10 11 315 33 845		E F F E E W W W W W W W	30 30 15 20 1 15 12 45 15 10 10 10 50 50 0	C C I p S l t g t h w d T p f t h f t t w t l C

D t d b		II IST	B	I t t d		I l	II h t	R m k
				N t l	S t			
1906								
Jun 8	GN	10	5	1		W	150	O A l d w t l t b 70 w y f m l b
— t d			8	1)		W	110	O A l t k t l t b t t m 30 w y
			5	1	9	W	15	C f m l m b
			9	2	54	W	30	C
D 10	SS	10	10	05	81	Γ	40	C
			10	1	8	I	1	D bl
			3	3	34	I	15	
			30	7		I	75	
			8	8		I	30	N w t t l
			2		16	I	10	
			3	1	1	I	0	
			1		475	I	1	
			1	0	1)	I	40	Γ k l l
			18		70	I		
			17	1	79	Γ	2	
			10		81	F	30	N w t t l U l l l f b g l t t l w
			15		88	F	1	V y f t
			58		57	W	35	D t l d f l m l
			9	1	4	W	3	O l k
				0		W	1	
			1		1	W	1	N t
			2	11		W	9	±
			48	2	13	W	35	±
			19		51	W	25	±
			10	1	((	W	15	±
			10	1	77	W	15	±
			42	4	60	W	60	±
D 11	CN	9	10	05	40	I	0	
			8	1	34	I	30	
			9	2	3	I	30	} M t g t t l
			6		24	F	1	l l t l d i t l f t l l a s t p m by
			5	05	14	I	5	V y l g h t
			3			I	12	
					2)	I	60	
			0	1	155	I	1	
			1)	15	185	W	40	N t f d C
			17	1	14	W	0	M t C
			10	3	17	W	0	O l
			15	4	1)	W	0	
							±	l l l w f t l b f l f t h
			1	05	81	W	30	± U l p h l f y f t
D 15	CN	11			525	I	3	
				5	21	I	1	D t l l f l l
			0			I	30	
			15	15		W	30	±
				05	30	W	1	± S N t
D 20	SS	10	41	05	8	I	40	± F t
			10		51	Γ	10	D l l
			39	1	38	Γ	25	
			38	1	31	L	0	
			30	1	0	I	30	
			3	15	5	Γ	20	
			34	05		F	10	
			3		11	F	30	
			3		0	F	0	
			9		48	F	0	
			31		1	I	30	±
			9	15	54	I	30	
			52		38	W	30	
			50	2	19	W	20	
			4)	4	10	W	35	
			48	05	19	W	10	

D t d b		H 1ST	B	L t t d		L m b	H g l t	R m l
				N t l	S t h			
1908								
J	20	SS	10	1	20	W	2	
—	tz			15	33	W	0 ±	Γ t l f t y p t t b S N t
D	21	GN	8	45	3 5	F	0	
				40		E	0 ±	
				54	55 5	W	3	
				54	11	W	35	M t t b
				50	31	W	30	
D	22	SS	11	14	84	E	35 ±	D bl
				8	42	F	10	B l t t l
				15	38	E	15	l t d t l
				8	35	F	80	Sl l t l y b d t t p
				5	33	D	2	
				7	3	I	1	
				5	0	D	15	
				3		D	20	
				1	18 5	E	50	l w l t t l m t t t p
				1	58	F	30	
				20	78	W	15	
				26	18	W		N t t p
				2	10	W	25	Γ t
				4	14	W	20	
				3	1)	W	20	
				8	3	W	0 ±	T l f t
				17	41	W	10	
D	24	GN			7)	F	10	B d t t l
					50	F	50 ±	O b g h t l h t h a r t p l l t t
					49	Γ	50 ±	l b g h t t l t h f m
				0	42 5	E	90 ±	A h t O t l l m d w y b t w t l t p
								f t l d t l l t l m
				0	30	F	100 ±	
				1	32	Γ	1	l d t l l t t w p m t l
					21	F	L w	O b l 10 l g h n O
				8 19	14	F	35	O
				1	7	D		I t l y l g h t l j t C l g h t l y d p l d
				45		I	60 ±	
				45	13	Γ	0 ±	
				49	58	W	30	C l t
				9 12	88	W	60 ±	
				9 19	88	—	10	( Sl l t l y l d t t p
D	25	C N	10	1	1	I	15 ±	
				12	40	Γ	10 ±	
				4	30	L	2 ±	
					26	D	20 ±	
					10	D	12	
				41		D	20 ±	
				38	12	Γ	30	
				36	30 5	E	1	
				36	32	W	20	
				10 16	42 5	W	20	P t d t t l
				16	39 5	W	40	
				18	35 5	W	35	
				5		W	20	
				14	32	W	2	
D	27	SS	10	11	50	L	30 ±	80 l g h O
				8	32 5	I	20	
				6	24	E	50 ±	
				4	17	D	15	
				2	5 5	D	20	Th l t th
				0		D	60 ±	V y f t
				9 56		D	90 ±	
				50		E	15	
				10 23	7	W	40 ±	
				21	26	W	25 ±	
				19	35	W	30 ±	
				16	75	W	10	S N t

D t l l	H I S r	B	L t t l		I b	H g l t	R k
			N l h	S t l			
1 (							
J 29	8 38 38 38	4 0 1	51 75 )	65 1	I I W W L	0 25 60 20 80 ±	C C C C S N t N
D 2J SS	10 16	1		1	L	80 ±	
D 30 CN		5	77		I	80	O
	3	0	31 10		L D	10 1	B d t p C p m 2 b d A O t k p d f m th t p d p th l th ttw p mm
	2	05	(		F	2	
	(	2	1		E	60	O 11
	(			11	F	20	
	(	1		17	I	80	
4 5	0 f			0	L	45	} b m d by t k 7 l g
0	0			83	F	20	
J 7	1			85	W	12	O S l t t d
7				2	W	30	C
8		45	55	1	W	±	
8		15	10		W	2	



## NOTES

1906

- January 5 The whole limb was examined in very bad sky. There was practically no observation.
- 6 Lat - 12 W Very bright. Eruptive C was displaced both ways at several places in the prominence.
- 7 Note 1—Lat - 64.5 L A vertical streak about 10 high with another about 25 high near it detached from the former and from the limb.  
Note 2—Poor sky.
- 8 Note 1—Lat - 10 E Metallic. Rapidly changing. At 9 hours 15 minutes the prominence became much shorter and the base more continuous.  
Note 2—The south west quadrant was examined in poor weather.
- 11 Lat + 12.5 D Very bright and metallic. C and D<sub>2</sub> slightly displaced to violet over the whole of the prominence.
- 12 Seeing was alternately poor and fair in the forenoon and good in the afternoon.
- 14 The limb was not examined between position angles 200 and 00 on account of clouds.
- 15 Lat + 29 W Bright. Broad at top. There was a faint extension of the prominence as far as Lat + 23 W.
- 19 Note 1—Lat - 0 E 14 broad at base in Ca. The chromospheric layer was absent from position angle 91 to 92 the gap appearing very black.  
Note 2—Lat - 33.5 W Top slightly broader and slanting westwards. Ca prominence was 2 broad at base.
- 20 Lat - 9 D The prominence consisted of fragmentary clouds. Changing rapidly. The forms as visually observed in Hydrogen at 9 hours 15 minutes and 10 hours minutes and as photographed in Calcium at 8 hours 43 minutes differed very much from one another. C was displaced to red at the top and brightest part of the prominence at Lat - 12 L.
- 24 Note 1—Lat - 4 D Lower part bright the rest of the prominence mainly consisting of irregular streamers was faint.  
Note 2—Lat - 36 W The Ca prominence was surrounded by a streak parallel to limb making the total height 35.  
Note 3—Lat - 26 W A slanting Ca streak passed through the top and met limb at Lat - 23 W.
- 25 Note 1—Lat + 1 D A faint cloud connected to limb by a slender streak. In Ca bright 120 high and connected to limb broader than in Hydrogen.  
Note 2—Lat - 15.5 E Upper part detached from the lower and floating at an elevation of 100 to 150 the lower portion of the prominence not rising above 30. Very faint in Ca.
- 26 Note 1—Lat + 10 E Slanting eastwards with a short stream flowing northwards from the top.  
Note 2—Lat + 16 W In Ca the prominence was 20 broad 30 high from lat + 9 to + 19 W and 20 from + 19 to 29 W.
- 27 Note 1—Lat - 55.5 D There was a stream running southwards from the top and down and meeting the limb at lat - 62 E.  
Note 2—Lat + 20.5 W There was a longish cloud near the western end of the main prominence but detached from it and from the limb.
- 29 Lat + 20 E More continuous in Ca. Na and M<sub>2</sub> lines bright at base.
- 30 Lat + 44 E An apparent dark hole in the prominence at lat + 43 E. There was a faint extension of the prominence as far as lat + 40 E.
- 31 Lat + 32.5 and + 23 F Changing rapidly. Sketches made at 9 hours 5 minutes and 10 hours 45 minutes and a photograph taken at 8 hours 34 minutes differed very much from one another.
- February 1 Note 1—Lat + 38 E A very faint cloudlet about 60 high was observed over the lower prominence at 10 hours 30 minutes. It was strong in Ca and connected to the base by a slender stream.

1906  
February  
—contd

- 1 Note 2—Lat  $-12.5^{\circ}$  W Two streaks meeting at top. A long faint Ca cloud 40 high at the southern end and 50 at the western was floating over this prominence.
- 2 Lat  $+16^{\circ}$  E Two of the Ca photographs showed the prominence as 130 and 120 high respectively. The forms in the two differed from each other and from the sketch in hydrogen.  
 Note 1—Lat  $+53^{\circ}$   $+38.5^{\circ}$  and  $+2^{\circ}$  L In the three prominences were mounted by a very faint slender streak 10 high and connected to the limb at Lat  $+57^{\circ}$  L.  
 Note 2—Lat  $+15.5^{\circ}$  W Very faint. Slanting northwards. There were a few short detached Ca streaks between the tops of the last and the next prominence.  
 Note 3—Lat  $+3^{\circ}$  W Ca prominence 95 high 22 broad at base and connected to the last prominence.
- 4 Lat  $+36^{\circ}$  W A cloudlet quite detached from the limb in hydrogen at 10 hours 25 minutes A.M. but connected to it and also to the top of the last prominence in Ca at 9 hours 17 minutes.
- 5 Note 1—Lat  $-6^{\circ}$  L The top extended southwards in Ca almost meeting the prominence at Lat  $-1^{\circ}$  L.  
 Note 2—Lat  $-2^{\circ}$  W Double. Very bright metallic. The only bright lines observed were  $b_1$ ,  $b_2$ ,  $b_3$  and  $b_4$  in which however the whole prominence was visible.
- 6 Note 1—Lat  $+0^{\circ}$  L There was a bright vertical streak in the middle 120 high in Ca.  
 Note 2—Lat  $-1^{\circ}$  L Eminent. Broad at top, broader in Ca than in hydrogen. A Ca streak from the eastern end of the top reached as far as Lat  $-1^{\circ}$  L.
- 7 Lat  $+58^{\circ}$  L Detached from limb. The lower half of the prominence was oval and was about 2 broad. The upper pointed and slanting northwards.
- 8 Lat  $+27^{\circ}$  L There was a straight vertical column at the top of the prominence in Ca making the total height 55.
- 9 Note 1—Lat  $+61^{\circ}$  L Faint, fragmentary and detached from limb. In Ca connected to limb and more continuous.  
 Note 2—Lat  $+18.5^{\circ}$  L There was a low extension of the prominence for about 2 on each side of the base.  
 Note 3—Lat  $+28^{\circ}$  W Slanting northwards—more so in Ca than in hydrogen. Ca prominence 2 broad at base and 95 high.
- 10 Note 1—Lat  $+6^{\circ}$  W Top extended southwards for about 6 in hydrogen and 10 in Ca. Base 4 broad in Ca.  
 Note 2—Lat  $+2.5^{\circ}$  W Top connected to that of the last prominence by a Ca streak. A similar streak extending northwards and bending down touched the limb at Lat  $+37^{\circ}$  W.
- 11 Note 1—Lat  $+1.5^{\circ}$  and  $+7^{\circ}$  W In the photograph (8 hours 37 minutes A.M.) the Ca prominence extended to  $+7^{\circ}$  and a streak from the upper part passed through the next prominence and met the limb at Lat  $+16^{\circ}$  W.  
 Note 2—Lat  $+27^{\circ}$  W Connected to the last prominence by a faint streak.
- 12 Lat  $+13^{\circ}$  W Top spreading both ways with an extension to the south meeting the limb at Lat  $+7^{\circ}$  W.
- 13 Lat  $+25^{\circ}$  W Top very broad and spreading both ways meeting limb again at Lat  $+16^{\circ}$   $+30^{\circ}$  and  $+34.5^{\circ}$  W about 3 broad in Ca at the last position.
- 14 Note 1—Lat  $-23^{\circ}$  E Faint in Ca, metallic. F displaced 1 A to violet at 8 hours 10 minutes. Northern end of the top flowed northwards and met the limb again at Lat  $-11^{\circ}$  L.  
 Note 2—Lat  $-24.5^{\circ}$  W A faint cloudlet issued from the top towards the south. In Ca a similar cloudlet appeared on the opposite side. The chromosphere was slightly elevated for about 1 to the west of the prominence.  
 Note 3—Lat  $+10^{\circ}$  W Connected to the last prominence by a streak. Form very different in Ca, the photographed prominence being at least 6 minutes high (at 8 hours 40 minutes A.M.) and reaching the limit of the plate.  
 Note 4—Lat  $+19.5^{\circ}$  W F displaced 1 A to violet over almost the whole prominence which was rapidly changing in form. It had entirely disappeared at 9 hours 50 minutes nor was it seen on the Ca photograph (8 hours 40 minutes).

1906

February  
—contd

- 14 Note 5—Lat + 45 W A streak detached from the limb Ca prominence consisted of two streamers both joined to the limb and meeting each other at top
- 17 Note 1—Lat + 15 E Top very faint and almost detached from base the latter was bright and  $\Gamma$  was displaced in both ways—about 0.5 A to red
- Note 2—Lat - 8 E Consisted of two streamers parallel to limb the lower one being close to it
- 19 Note 1—Lat + 73 E This was a longish cloud detached from limb in hydrogen but connected to it at two places in Ca
- Note 2—Lat + 37 + 3 and + 30 E Ca prominence somewhat different in form and 180 high There were several streamers proceeding from the Ca prominence the longest of them running eastwards for about 10
- 22 Note 1—Lat - 49 E Southern end very faint slanting southwards and meeting the next prominence at top
- Note 2—Lat - 47.5 W A slender streamer slanting southwards with a bright rectangular patch about 2 broad at top 3 broad at base in Ca
- Note 3—Lat + 1 W Slanting northwards about 1 broad except near base Very strong in Ca
- Note 4—Lat + 11 W Base broad and bright The east of the prominence was a narrow streamer slanting northwards
- 23 The whole limb was examined in poor weather
- 24 Lat + 72 F Three streaks meeting each other at a height of 50 and forming a single prominence above that height Station in Ca
- 25 Observed during breaks in clouds
- 26 Do do
- 27 Note 1—Lat + 2 E Top sharp and slanting northwards A faint streamer about 70 high extended eastwards from near the top Chromosphere was slightly elevated for several degrees on each side of the prominence
- Note 2—Observed during breaks in clouds

March

- 2 Lat + 40 W Slanting northwards This appeared to be a streamer in Ca about 12 long flowing from the top of this prominence and over the last
- 4 Note 1—Lat - 8 E Faint filamentary streamer about 4 long flowed southwards from the top 1 broad and 40 high in Ca (8.27)
- Note 2—Lat + 1 W Intensely bright spikes Ca slightly displaced to red at Lat + 1.5 W
- 5 Lat + 12 + 15 and + 19 W Metallic Na line Mo line very bright Ca slightly displaced to red at the base of the prominence at Lat + 12 W
- 10 Note 1—Lat + 40 F Faint Top slightly brighter than base A Ca streamer connected the base to the top of the last prominence and another Ca streak connected the top to the top of the next prominence Lower half of prominence not found in Ca 130 high in Ca
- Note 2—Lat + 20 W Slanting northwards There was a streak about 12 long proceeding northwards from the top
- 13 Note 1—Lat - 10 E Changing Surmounted at 5 hours 4 minutes by a streak about 8 long and parallel to limb
- Note 2—Lat - 43.5 L Bright Filamentary A short faint streamer proceeded southwards from the top
- 15 Note 1—Lat - 8.5 E Bright continuous slanting southwards with a very short streamer flowing northwards from the top
- Note 2—Lat + 23 W Bright continuous A streamer about 6 long and parallel to limb flowed southwards from the top the southern end of it was connected to the chromosphere at Lat + 28 W by a streamer running right across the main prominence
- 16 Lat + 22 W Bright in hydrogen faint in Ca Ca prominence extended 3 further south and the extension was strong
- 18 Poor weather
- 19 Lat + 3 W Bright metallic rapidly changing Na line Mg lines bright Ca and D $\delta$  slightly displaced both ways

1906

March

- 20 Lat + 29 L Slanting eastwards Ca prominence formed an arch 35 high and meeting limb at Lat + 20 L and + 21 E
- 21 Note 1—Lat + 20 E Slanting northwards  $\Gamma$  displaced both ways to the base — 1 A to red The top of this and the prominence at Lat + 32 E were connected by a Ca streak
- Note 2—Seeing poor
- 23 Note 1—Lat - 88 and - 82 W Two bright vertical pillars the space between the upper part of which was filled in with fainter matter
- Note 2—Lat + 18 W Top broader It was connected to the prominence at Lat + 42.5 W by a Ca streak
- 24 Lat + 37 L Faint slightly slanting eastwards Top slightly broader than base Tree like in Ca
- 25 Lat + 31 and + 27 L Meeting at top A streak about 5 long proceeded northwards from the top in Ca Ca prominence 70 high
- 26 Lat + 30 L Slanting northwards Ca prominence extended to Lat + 44 E at top and was 45 high
- 2 Seeing poor
- 28 Limb curves on sun
- 29 Seeing bad
- 31 Note 1—Lat + 30 E Bright slanting northwards Ca prominence extended further north at top and could also be traced well into the disc of the sun
- Note 2—Lat + 14.5 W Bending southwards at top Two short bright vertical streaks near base

April

- 3 Prominences were not observed in hydrogen Weather bad
- 6 Seeing poor
- 10 Note 1—Lat + 2 L The lower part was bright and 90 high the upper part very faint and about 60 The Ca prominence was a slanting cone uniformly strong and 120 high
- Note 2—Lat + 6 L Faint Two very faint Ca streaks proceeded northwards from the prominence the upper one meeting the limb again at Lat + 16 F The prominence was more continuous in Ca than in hydrogen
- Note 3—Lat - 14 L Very faint A Ca streak from it met the limb again at Lat - 7 L
- Note 4—Lat - 42 L About 10 broad at top Tree like the stem was very bright Faint in Ca
- Note 5—Lat - 7 W There was a very faint cloudlet near the western end of the top but detached from it
- Note 6—Lat + 10 W Very bright changing rapidly  $\Gamma$  displaced slightly to red and  $D_2$  to violet The prominence was 25 high at 9 hours 14 minutes Soon after there was a slanting streak from the top making the total height about 35 At 9 hours 53 minutes it measured 15 in height as when first seen and had become less bright
- 11 Note 1—Lat + 20 L Top broad and extended eastwards over about 8 Strong both in Ca and hydrogen
- Note 2—Lat + 16 F Broader at top  $\Gamma$  and  $D_2$  slightly displaced both ways at base
- Note 3—Lat - 7 E Photographed in Ca not observed in hydrogen Changing The prominence was quite different in shape and 60 high at 9 hours 21 minutes
- Note 4—Lat - 35 F Faint in Ca and hydrogen The tops of this end of the prominence at Lat - 29 F were connected by a faint streak
- Note 5—Lat - 29 W Bright A faint slanting strip 120 high proceeded from near its top in Ca
- Note 6—Lat + 22 W A short streak proceeded northwards from the top in hydrogen and both northwards and southwards in Ca
- 12 Note 1—Lat - 62 L Slanting southwards Ca prominence had a short streak proceeding eastwards from the top
- Note 2—Lat - 19 W About 2 broad but detached from limb Slanting westwards Ca prominence was 100 high and extended to Lat - 2 W

1906

April

- 13 Note 1—Lat  $-3^{\circ}$  W About 1 broad but detached from limb irregularly shaped  
Rapidly changing  
Note 2—Lat  $+4^{\circ}$  W Two Ca streaks 110 high proceeded from near this point to the top of the last prominence
- 14 Lat  $+24.5^{\circ}$  W Lower part bright about 20 high and connected to the top of the last prominence by a faint streak above the prominence there was faint slender vertical streak
- 15 Lat  $+33^{\circ}$  W A streak branched away from the prominence at a height of 30 and extended as far as Lat  $+20^{\circ}$  W
- 16 Note 1—Lat  $+31^{\circ}$  D Surmounted by a streak about 10 long  
Note 2—Lat  $+8^{\circ}$  W Broad at top faint filamental 10 high 1 Ca at 8 hours 11 minutes The Ca extension was much longer in a later photograph
- 17 Note 1—Lat  $+19^{\circ}$  E Broad at top with a streak 7 high extending about 7 in hydrogen but continued to the prominence at Lat  $+33^{\circ}$  L in calcium  
Note 2—Lat  $-43.5^{\circ}$  E Bright top broad with a faint streak connecting it to the limb at Lat  $-40^{\circ}$  E  
Note 3—Lat  $+30^{\circ}$  W Surmounted by an irregular streak 15 long the base extended to Lat  $+9^{\circ}$  W as a low elevation There was a very bright spot surmounted by a filmy cloud in the Ca photograph at Lat  $+30^{\circ}$
- 21 Note 1—Lat  $-9^{\circ}$  W Ca Top broad and bent towards the prominence at Lat  $-15^{\circ}$  W  
Note 2—Seeing poor — very bad when observing the south west quadrant
- 23 Note 1—Lat  $+30^{\circ}$  D A streamer about 6 long extended northwards from near the top Ca prominence different in form and 90 high the upper 30 of which was faint  
Note 2—Lat  $+20^{\circ}$  D Slanting northwards Ca prominence was different in form  
Note 3—Lat  $+1^{\circ}$  L Tree like Connected to the last prominence in Ca Base extended 4 further south in Ca
- 25 Lat  $+31^{\circ}$  D Tree like Top extended to Lat  $+10^{\circ}$  D Northern end of the top was bright and dense
- 27 Poor sky
- 29 Lat  $+30^{\circ}$  W Top extended southwards as a bright streamer as far as Lat  $+23^{\circ}$  W and with a faint continuation for 3 further south In Ca it reached the limb at Lat  $+18^{\circ}$  W
- 29 Note 1—Lat  $-20^{\circ}$  W Large tree like Ca prominence more continuous and 90 high  
A C streak connected this to the top of the next prominence  
Note 2—The observation was interrupted by clouds
- 30 Poor weather

May

- 1 Poor weather
- 3 The observation was made during breaks in clouds
- 4 Note 1—Lat  $-25.5^{\circ}$  D In Ca a faint curved streak proceeded southwards from the top making the total height 60  
Note 2—Lat  $-74^{\circ}$  E Double one being close to the top of the other but detached from it and from the limb
- 8 Note 1—Lat  $-51^{\circ}$  W A slanting cone There was a faint patch on the west side  
Note 2—Lat  $+66^{\circ}$  W There was a faint streak above the top of the main prominence but detached from it and almost parallel to the limb
- 9 Lat  $+13^{\circ}$  F This prominence was a cloud about 5 long and connected by a faint streak to the limb at Lat  $+13^{\circ}$  E The lower part of the cloud was 60 above the limb
- 11 Seeing poor
- 12 Lat  $+30.5^{\circ}$  E Top broad A Ca streak connected the top to the small prominence at Lat  $+20.5^{\circ}$  E
- 13 The observation was made mostly through alto cumulus cloud
- 14 Passing cirrus and cumulus clouds

1906

May

- 18 Note 1 —Lat + 87 + 83 + 79 and + 7 E Very faint and detached from the limb  
A C cloud stretched across the four prominences and was connected to the limb at Lat + 86 W  
Note 2 —Lat - 21 W Haupt's  $\Gamma$  was displaced 1 A in the whole prominence At 9 hours 25 minutes it was only about 30 high and connected to the prominence at Lat - 2 W  
Note 3 —Lat - 18.5 W Very strong both in hydrogen and Ca metallic Na Mg Fe strong even through clouds  
Note 4 —Lat + 31 W A Ca streak issued from the prominence and met the limb at Lat + 41 W
- 19 Lat - 13  $\Gamma$  A Ca arch extended northwards from the top
- 22 Lat + 11 I Top faint and detached Base very bright even 1 a poorly  $\Gamma$  displaced at several places—greatest amount 3 A to violet and about 2 A to red  
D<sub>8</sub> also displaced both ways Na Mg Fe lines very strong A curved Ca streak 30 high ran up to the north from the base
- 23 Lat + 0 W The Ca prominence extended 4 inches south and a streak from the top reached latitude + 20
- 25 Note 1 —Lat - 14 W A Ca streak extended northwards met the limb at Lat - 6 W  
Note 2 —Lat + 30 W Cone like Slanting northwards There was a dark patch in the prominence near the base The top was as broad as the base in Cr
- 27 Note 1 —Lat + 30 E The tops of this and the prominence at Lat + 13 E were connected by a Ca streak passing through the intermediate one  
Note 2 — Poor weather
- 28 Poor weather
- 30 Weather unfavorable

June

- 1 Note 1 —Lat + 6 W A faint slanting streak from the top made total height about 60  $\Gamma$  prominence slightly larger in Ca  
Note 2 —Clear sky
- 3 Note 1 —Lat - 5 W Cr Detached from limb Nearly connected to the base of the last prominence by an irregular streak broken at several places  
Note 2 —Cloudy with short breaks Only about three quarters of the limb was examined  
Note 1 —Lat + 30 I Ca Detached from limb the bottom of the prominence being 40 above the limb  
Note 2 —Lat + 16 and + 11 L A cloud with its bottom 110 and top 150 from limb floated over these prominences  
Note 3 —Lat + 16 + 19 and + 20 W Surmounted by a streak about 10 long Glancing The streak disappeared at 9 hours 30 minutes Ca photograph showed a low bank from Lat + 13 W to + 20 W and a prominence 3 broad and 70 high with a dark patch in the centre at Lat + 23 W
- 10 Lat + 1 W Faint filamental tree like In Cr the top extended northwards bending down and meeting limb at Lat +
- 15 The whole limb was examined twice
- 20 The observation was made hurriedly during breaks in clouds
- 28 Cr photograph very poor Weather bad for visual observations
- 29 Weather bad

J EVERSLED

25th April 1907

As Director Kodakanal and Madras Observatories







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		37	1	65	E	40	
		36	1	86	E	10	
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		46	15	81	E	30	
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				3 5	W	1	
		2	1	10	W	25	
		48	05	73 5	W	20	
		48		74 5	W	20	
		48		77	W	20	
J ly 24	SS	8 27	05	51 5	E	30	
		58	4	41	F		
		24	25	4	D	25	
		58		1	F	50	
		22	2		E	25	
		59	1	12	E	15	
		40	1	5	E	5	
		43	1	43	W	25	

D t d b	H I S T	B	L t t l		L m b	H l t	R m k
			N t h	S t h			
1906	M						
J ly 24	SS	8 41 46 51	71	3 2)	W W W	60 ± 5 3	D bl N t t p
J ly 25	KVS	9 2 8 16 55 50 47 9 27 8 45 9 22 18 15	85 1 1 4 1 15 1 1 15 3	50 5 40 30 23 15 95 14 32 10 47 5 31 5 14 5 12	F L E F F I I E W W W W	90 0 35 80 ± 20 17 20 1 0 1	Hgl d N t h d b g l t t h t h t f t h V t l S N t O B g h t l t t m t l l Tl f t l l t t h F t B h t l A l w l k O p l t p l t k n t 8h 16m
J ly 26	SS	8 32 31 30 8 27 6 5 4 21 18 40 39 38	05 1 3 1 1 1 1 1 5	51 39 30 0 17 1 1 19 10 3 33 5 37 10	F F F F I F F T I W W W W	30 2 20 0 1 25 15 10 0 3 2 10 10	B g l t S l t t h w d C l k N w t t p
J ly 28	SS	9 43 19 39 30 9 10 23 20 20 18 1 17 17 9 15	1 1 05 05 1 0 0 77	82 81 52 38 (45 7 34 3 105 8 C	F F I F I W W W W W W W	30 20 10 10 10 0 95 10 10 2 10 2	D bl T p t t l t p m B d t t l I ly
J ly 30	S	10 16 10 9 57	15 1	12 38 59	F T T	10 ± 10 ± 2 ±	D l l B l l y O l y t l t h t q l t w
A g t 2	SS	8 53 49 47 42 40 38 35 9 7 4 2 1 0 8 56 56 14	05 1 1 1 1 05 05 1 1 45 1 1 1	84 42 f 35 19 ( 07 035 28 105 7 135 20 51 88	F F F F F E W W W W W W W	10 ± 10 ± 20 20 20 90 3 20 10 40 10 2 2 75	m d N t 1 S N t 2 S N t 3 U l l p t f t } M t g t t p n d 40 D t t p } h g h n O O l l q l t g t l d T t l t t l w d D O D t l l f m l m b O l h t p l w t l t 8h 14m

D t d b	H [ST	B	L t d		L l	H l t	R m k
			V th	S th			
1906							
A g t SS	8		8		E	20	T p
	49	1	30		E	10	
	4	1	2		E	30	
	45				L	0	
	40	3		1	T	0	
	7		43		W	0	
	57	05	46		W	20	
	5	05	52		W	0	
	53	1	74		W	1	
A g t 6 SS	8 8	0	67		I	30	L b m d b tw P A 180 d
	33		20		I	30	32 t f l d
	32		19		I	60	T l l k
	30		115		I	90	l l d l t w y f m l m b
	20	0	5		I	10	S l t t l k
	2	1		20	F	25	D l l
	24	1		23		30	
	22	1		28	I	35	B l t w d p t h g h t h t j f t h
	21	2		33	I	3	t l m
	0			38	F	15	V f t
	19			485	F	10	
	18			59	I	0	V y f t S l t t w l
	16			605	I	10	
	15			745	I	15	
	7	4		81	W	1	V y f t
	5	1		57	W	95	
	3	1		2	W	25	l l m t l b g t L t - 18 W
	51	1		9	W	15	
	0	2			W	30	
	40	05	11		W	1	
	46	10	26		W	2	
	44	1	48		W	1	
	42	2	58		W	30	
A g t 7 SS	8 38	0	255		I	10	
	3		10		I	75 & 10	S N t 1
	3		5		I	0	
	27	1		35	I	40	S N t 2
	25	1		255	F	5	S l t t l d
	23	0		20	F	20	D
	0	1		95	I	7	T l l l p m t l m l t L t - 32 E
	18			0	I	10	
	54			21	W	10	
	53	2		15	W	10	
	52			8	W		S l t t l w d
	49		39		W	25	D
	48	0	41		W	2	D
	4		5		W	05	
A g t 8 SS	9 1	05	9		F	100	S N t
	8 80	5		355	F	60	S t l l l f l g l t t h t h t
	35	1		40	I	25	
A g t 9	8 14	1	1		I	40	O l t h t h t q d n t w m d
							O l d y
							S N t
							l l y
A g t 10 SS	10	05	8 5		I	30	
		1	21		I	25	
		05	15		E	50	
	35	1		80	W	30	V t t
	32		3		W	30	S l t t l w d
	31		1		W	25	D
	15		41		W	40	D
A g t 11 SS	8 2		84		I	20	S g b d
	22		40		F		

J t d b	H IST	B	L t tud		L b	H l t	R m
			N tl	S tl			
1906							
A g t 11 SS	8 20 15 17 1 18 10 8 8 ( 10 40 33 33 33	2   1 3 3  2 4 1 2 1 1	43 10 7 L 1      5 13 18 61	215 305 1 11 6 81 75	F I E E E F L E L W W W W W	6 + 20 20 20 10 50 25 20 10 15 25 40 60 60 20	N w t t } B d t l d d l C N t l  I f w t l b t 3 F t D B l t t t m t t l } M t g t D t p I l t t l l t p m C l l t p l ) 3 l t l p g l d
A t 12 GN	8 18 47 11 11 37 96 95 32 30 30 28 J 2 1 8 5) 5) 5 53 3 0	  1 15  1  05 0  0 2 05 8 3 0 05	73 435 40 3 105      155 315 48 4 70 71 5 11 405 105 28 30 13	     15 5 315 48 4 70 71 5 11 405  28 30 13	I L I F I I I F I W W W W W W W W W	20 20 20 15 0 3 1 1 1 3 10 10 10 10 20 20 20 20 20 20 20	Slightly b l t t l F t S l l l t th Slightly b d g t w d th t t l D l l N t t l S N r p h l ghtly t l d O l t g l w t l t 9
A t 13 SS	0 1 ( 0 8 51 9 0 2 8 1	   1 0 05 f	435     0	6 3 8 (0 1	F I F W W W W	30 20 30 0 10 2	V y f t D t l d f l l O I
A g t 1 SS	) 8 8 57 5 1 53  1 51 ) 49 44 40 3 3 2( )	2 8 1  0 1 15 1 1 35 1	73 18 10      11 22 35 81	13 18 1 4 50 1 73 9 57 48	I I I E F I I I I I T W W W W W W	60 4 3) 10 10 25 25 15 15 10 1 50 15 30	L t I l l I t t f d ( S N l B l l l t ( p t j l t L t + ( E M t ( q l 50 I S N t 2 N y f t l g l C l t 8 57 l l ( l l t g p l w t k
A g t 16 SS	J 2 25 5  17 17	 1 1  1	9 50 47  18 50	    18 50	I I I F E F	0 50 2 0 20 8	I l l k t t p Slightly t l l Slightly t p

D t d b	H I S T	B	L t d		L m b	H g h t	R m k
			N h	S t l			
1906							
A t 16 S S	9 17 45 40 35 35	0 5		5 45 17	L W W W W W W W	25 25 40 15 10 20 10 40	B h t V y f V y f I l d C l t p l t k t
A g t 17 S	8 37 32 30 29 28 27 24 15 14 13 10 9 8 17 8 32 9 11 6 4 1 3	0 5 1 1 1 1 5 5 0 5 3 1 5 1 5 1 1 0 5 1 1	80 50 5 36 5 29 3 5 1 8 5 9 18 26 3 54 5 3 61 49 40 8 15 36 5 80		D E D F F E D D E I F E W W W W W W W	40 3 15 2 0 20 20 2 0 25 20 5 15 3 40 3 1 35 20 3	Sl htly b l C B l U D 50 l h C C B l t p B g h t F t P g l d C l h t g p l w t k
A t 29 S S	15 37 9 14 8 2 10 30 25 5 2 2 5 1	2 1 0 5 2 0 5 0 5 3 5 1	59 6 5 1 5 45 43 53 51 19 48 8 81		F E L F W W W W W W	30 0 20 40 10 30 40 3 35 60 (0	O B g l t N w t t p B h t I t l d f m l b D S N t N w t t l P l d S g l C l h t l h w
A g t 30 C N	8 3 34 9 20 20 8 32 30 25 9 20 8 54 50 49 48 48 15 4 4 40 9 20	0 5 1 1 0 5 0 1 2 5 0 5 0 5 1 1 1 5 0 5 0 5	5 44 29 27 5 17 11 1 11 4 57 7 83 54 1 28 21 9 5 7 49 78 77 8		E F E E E E I L J W W W W W W W W W W	10 30 10 10 15 40 50 15 50 25 50 30 30 30 10 20 30 5 3 (0 30	t k t 15 37 b g l t t S N t C b t C A y f j t M d t l b h t l y d g V y f t O F t C F t S l g h t l y t l l C C t d O S l g h t l y b d t t p C C p h t p h w t k t 9 20

D t d b	H IS 1	B	L t t l		L m b	H l t	R l
			N t l	S t h			
1906							
A t 31 SS	8 10 21 20 18 16 14 1 31 31 48 43 43 41 36 3 31	1 1 1 1 1 1 1 1 5 6 1 05 25 1 33	82 23 10 5      4 485 8 75	    14 46 81 (9 15 355 7 21 17   485 8	F I L F E F W W W W W W W W W W	0 ± 20 60 ± 4 25 4 35 ± 90 30 3 15 40 2 2 45 3 ±	A m l l p b t w p l d l w p t B g l t U p l p t d t h d f m l w d m l m b D b l f t B g l t F t S l g l t y b d C S N t O S l g l t y b d t t l } 1 p m t g h t t t t l 1 p m t l b t t l t + 2 W 3 ± C T l m t d b y t l t t h t f t h t l m 1 l t l b g t l t + 81 C O l h t l h w t k t 81 31
S p t m b 1 GN	8 33 33 3 3 30 46 15 44 41 40 39 31 36	15 5 0 0 15 1 2 2 3 15 1	24 1)      20 49 81	  3 45 17 335 8 4 4 20 49 81	I I I I F W W W W W W W W	10 10 10 15 20 ± 25 20 2 20 10 70 ± 4 ± 90 ±	O l k f t S l t t l d F t D } C t d t t t S l t t h w d b l g h t y l d t h w d t t l N w t l S l t l w d S N i l I I w S N t D b l T l l d l g l t y l t w d w t S l t t t i O l l t p l t l t 81 53
S p t m b 2 SS	8 7 22 0 18 17 15 12 10 9 8 43 42 37 35 33 30 29	05 05 05 05 05 05 05 1 2 2 1 4	7) 235 18 16 75 5   25 51 78 82	      9 42 49 54 26 12 6	I I F I F F F F I I W W W W W W	90 15 5 2 20 20 40 ± 10 3 25 40 ± 50 ± 10 20 60 ± 35 ±	S l t t h w d b l g h t y l d t h w d t t l N w t l S l t l w d S N i l I I w S N t D b l T l l d l g l t y l t w d w t S l t t t i O l l t p l t l t 81 53
S p t m b 3 GN	8 41 41 50 50 50 45 4 45	0 2 2 1 05	      79 56	175 20 25 22 20 5 4 3	E F W W W W W W	20 15 60 40 25 20 30 15	C l l A l t t l d t h d f m d p l l t l m b O l k S N t C p l t g l h t k t 91 25 C S l t t h w d
S p t m b 4 Sb	9 4 4 8 8 50 9 0 20 8 47 47 9 19	1 1 2 05 1 05 15	  Eq t     40	  22 305 38 35 37 40	E F I F E E E E	80 20 20 20 25 25 60 ± 35 ± 15	D b l R g l t



D t d b	H I b T	B	L t t d		L m b	H h t	R m l
			N t l	S t h			
1906							
S pt mb 4 S S	9 17			57 5	D	85 ±	
— td	10	3 5		22	W	4	D b l
	6	5		1 5	W	40	
	5			9	W	80	
	4		13		W	2	Slightly l t n thw d
			49		W	3 ±	D
	8 58	0 5	76		W	20	
S pt mb 6 S S	8 13		4		E	3	C h g ph w t k t 9 h 4
	6	1		41	Γ	45 ±	D b l
	6	0 5		44	L	1 ±	{ S N t l
	29	1		34	W	25	4 h l C
	2	1 5	8		W	25	D b l t l t w m t g t l t t t p
	2	8	32		W	25	S N t 2
	26	0 5	40		W	30 ±	O
							C p l t g ph w t l t 8 l 26 m S g
S pt mb 7 G V	9 1	3	22 5		I	40	p
	0	2	14		L	4	N w t t p
	8 59			31	D	40 ±	
	9 11	2		33	W	60	N w t t p
	10	1	30		W	1	
	10		34		W	20	
	8	1	41		W	30 ±	
S pt mb 8 S S	8 13	0 5	75		Γ	2	C p h t g pl w t l 8 l 2 l
	33		48		E	2	O
	32	1 5	42		L	80	D t h l f m l b l d t t p
	30	1	22		I	1	
	30	3	18 5		E	30	
	28	2	12		F	5	B g l t N w t t p
	21			49	I	0 ±	Γ t D t h d f m l b
	18			55	I	60	l t C
	58	1		65 5	W	15	
	9 00			58	W	10	
	01			47	W	20	
	8 4	2		32	W	40 ±	6 h g h n l p t d t t p O
	9 0	1 5		26	W	20	S l t t d w t t t p
	0 4			18	W	60 ±	A l l b t 6 l g w y f l m b
	8 48	1	34		W	30	S N t
	39	3	44		W	30	
	18		04		W	45	( F t
							O p h t g pl — 8 l 13
S pt mb 9 G N	9 04	1	42		E	20	
	01	0 5	37		E	15	
	03	1	27		E	25	
	0	2	24		L	15	
	02		22		D	30	
	00	0 5		13	E	30	
	8 0			56 5	D	60	
	9 12	0 5		46	W	60 ±	O p 70 h g h d b d t t p
	05	2		31	W	35	O F t
	06	2	17		W	25	
	07	1 5	37		W	40 ±	
S pt m 10 S S	8 51	0 5	88		E	10	O p h t pl 9 l 5 m
	0	1 5	78		E	50	A b t 60 h g l C
	49	0 5	73		D	20	V y f t
	46	0 5	48		E	25	S N l
	45		41		E	40	S N t 2
	43		31		F	20	
	43		20		D	25	
	40	0 5	26		E	30	
	40	1	23 5		F	30	
	40	2	19		E	30	
	38	2	4		E	10	
							O t d t t p C t b d d m
							t
							Γ p m t b f n t
							P
	38		1		F	15	
	36	1		2	E	10	F t
	33			21	F	10	
	32	1		28 5	E	30	

D t d b r	R I S T	B	L t t d		I b	H g l t	R
			N t h	S t h			
1906							
S pt mb 10 SS	8 30 9 9 05 05 8 58			5 60 7 79 3	D l l L W	35 0 30 10 10	D t h d f m l m b
	7 56	1	1 24		W W	15	Th w l l l t t l l y b t l p d 90 w y f m l b O
	54 53	2	41 5		W W	30	O l g l t l y d p l d b t l y N p m Th p m f l w t h d b t 5 t l l
S pt nb 11 G V	9 06 8 51 3 32 31 30 48 26 9 06 06 8 38 9 06 0 06		72 67 5 14 17 11 7 1 0 5 1 18 17 55 5 62		I D F I F I I L J I W W W W	0 10 0 15 1 5 0 1 30 90 10 0 0 30	O p l t g p l 8 l 10 C I t B d t t p S l g l t l y b d O S N t S l t t l w d S l t t l w l I ( t k i t p m l m b t l t + 3 l F t C C v y f t D t h d f m l b O A h t t m f l w t h w d f m t l t p O C C l l t g p l - 9 l O c
S pt mb 12 S S	8 34 2 22 2 27 20 1 9 18 1 11 8 40 45	2 2 2 1 1 5 1 1 4 2	44 5 7 0 5 9 17 50 87 82 49 22 53 5		E I F I D J L I W W W W	30 0 30 0 50 25 30 15 30 10 20 45	B l t l l } M t t t p B g l t B t l l w b k t l t + 17 W Bright P 6 l l
S pt nb 13 G N	9 20 1 9 25	1 5 1 2 5	6 28 5 44		L D W	30 45 35	I z
S pt b 14 S S	8 20 19 15 45 53 58 36 41 98 35 32 31 29 28 26	1 5 1 0 5 1 5 2 2 0 5 1 5 2 0 5 1 2 0 5 1	54 45 5 1 71 18 44 42 2 7 5 12 5 18 5 38 46 5 49 5 70		F F E W W W W W W W W W W W	45 20 20 10 2 40 20 20 10 60 3 C 30 20 0	F t S N t F t F t F t D t l l f m l m b O F t D h l S l g l t l y b l t t p C F t C C p l t g p h 9 l 3 m

D t l b	H I S T	B	L t t l		L l	H l t	R m k
			N t l	th			
1906							
S p t b 1 G N	8 31 45 34 43 43 41 41 39 36 50 47 4	1 2  1  0 5 0 1 5 0 5 0 5 0 5	80 5 57 49 19 16  11 5 27 49 5 8 10 9	9 5 11 5 27 49 5 8	E E E E L L E L F W W	40 20  20 ± 35 10 10 0 15 10 15 20	C  S N t 1 S N t F t d t t p  C p h t p h 8 1 84
S p t m b 16 G N	9 46 06 01  9 01 00 1 1 15	1 1  1 0 5  1	57 50 18 18  7 34 25 23 20	   7 34 25 23 20	L E L L D L W W W	60 ± 30 90 10 15 1 10 10 2	} F t A l m t t b t w n t l w d 45 h l C Q l t t l w l 4 l g h C  C p l t g p l 110
S p t m b 17 S S	8 31 26 20 6 22 20 15 49 46 45 4 44 44 42 40  37 3	1 1 0 5  1  0 0 5 1 5 1 5  5  2 2	82 5 50 48 6  13 23 76 53 0 49 37 30 22 16 4 16 t 16 20	   13 23 76 53 0 49 37 30 22 16 4	F F F L F D L W W W W W W W W W W	0 60 60 50 ± 10 50 65 10 20 10 5 0 10 1 2 —	} M l t t p I t } V y f i d t l l f l l } S N t B g h t I t D D C l l O l l l l t l A l w b l } C t d l y t k t t l ( l h t g p l 9 l 47
S p t m b 21 S S	9 43 10 04 0 02	 1 0 5	10 17 21	4	I W W W	30 ± 10 10 0 ± 0 ±	S N t B g l t B d g
S p t m b 26 G N	8 53 9 01 8 0 47  46 41 41 9 01 00  8 58 56 55	  6 5 1  3 0 1 5 1 3 5  5 3	82 56 47 3  21 5 44 47 80 5 5 2 43 46	    44 47 80 5 5 2 43 46	F L L L  L E E L W  W W W	15 15 7 ± 20  30 80 ± 50 70 45  25 25 60 ±	C S N t F l f w t w l 2 h y d g d 4 C N w t t l C t d F t C C F t F k l l t t p T l l t t t l d A O t k l t h g h t t p D t h d i l m b S l i g h t l y t l l n C N w t p C p l t g p h 9 l 01 m
S p t m b 27 G N	9 10 00	3 4 5	43 5 34		E E	60 50	S N t

D t d b	H 181	B	I t t d		L b	H ht	R m k
			N th	S th			
1906	M						
S pt mb 7 SS	8 34 32	2	J		I I	15 30	D b Slightly b d t t p A l d l t t p
	28 27 5 4	2 1		5 4 56 61	F L I I	10 90 1 20	N t t p
G N	9 31 30 9 2 10 02 9 2 23 14 1	1 15 4 1 4 1 3		91 8 54 30 21 17 1 48	I W W W W W W	10 20 90 36 0 1 30 10 60	Slightly b d C D bl D bl N t l n d l g h t O l y f t t C C p l t g p l 10 l 02m
S pt mb 28 G N	8 58 55 2 0 17 4 42 4 99 9 08 08 08 08 04 0 00	1 15 1 15 1 15 0 1 0 1 1 1 1 1 1	19 J 12 5	34 19 60 62 61 66 6 54 F 1 30 10	I I E F I I F I W W W W W W W	5 ± 3 0 10 40 ± 80 ± 10 60 ± 10 30 2 1 95 10 15 30 ± 3 ±	60 l g l O } t d b y t k O A d t l d l d l t D t h d f m l m b S N t C p l t g p l 10 l 02m
S pt mb 20 SS	9 07 8 20 11 14 18 14 4 47 4 43 9 0 8 11 44 10 37 38 3 93 32 30	2 2 05 05 05 15 15 2 2 0 0	4	1 19 23 1 14 14 3 17 15 12 1 3 2 2 32 5 47 5 51	I I I F I W / W W W W W W W W W W W	4 20 10 20 25 30 35 ± 50 1 2 80 20 0 10 10 10 3 ± 10 50 ± 50 ±	I t l p f l w t w d d l y m t h J t l T l y t l l y t O C I t P t l t t p F t J y i t C p l t g p l 10 l 02m
S pt mb 30 SS	8 30 33 30 7 27 15 15 23 9 1 9 00 8 54 53	1 2 3 15 2 2 0 0 15 2	8 5 C 10	20 20 1 50 53 8 7 73 C 60	I I L E F I I E F I F W W	30 ± 15 60 2 15 1 25 20 0 10 15 25 60	B g h t d l l B t d l w b n k f r l t + 10 L T l w l t t h F t N w t t p D

D te n l b	H u I S T	B	L t l		L b	H l t	R m k
			N th	S th			
1908							
S i t n l 30 SS	8 2	05		8	W	40±	V y f t Ab t 2 b d O
— id	50	1		28	W	0	Ol m ph l l t l y l t d b t w n th
	18	1		21	W	10	t
	47	1		18	W	10	B g h t
	1f			18	W	30	Ab l t d t h l l d l t
	43	2	1J		W	5	B g l t A l t k p d thw d f m
							th t p
	42	25	9		W	30	
	41	1	43		W	1	
	39	8	46 5		W	50±	
	37	1	88		W	15	
							C p h t g p h 8 l 5 m
O t l 1 GN	10 34	1	92		L	)	
	33	2		5	L	1 ±	D b l
	31	15		19 5	E	4	
	31			3	E	30	
	30			27	E	3J	
	29	1		87 5	E	85	P t d t t p
	28			64	I	15	
	26	1		71 5	L	10	
	26	0		74	I	30	
	24	05		74	W	15	
	41	1		59	W	50	S N
	39	)		23 5	W		
		05		16 5	W		B l t t p
	38			4	W	30±	
				1	W	0±	D t h l f m l l
	37	1	3		W	30	P t d t t l
	3	2	32		W	30	D
O t l 2 GN	8 0	1	81 5		I	30	
	18	2	5		E	10	
	9 0		26		L	40	C A f n d t l l l l l t
	8 18	1	13		E	10	
			1		E	20±	B d t t l
	15	05		4	F	30	
	1			7	E	30	O t d t t l
	1f			85	D	30	
	15			10	E	80	
	12	15		21	E	40	P t d t t p
	10	4		38	I	80	D
	8			40	I	20	
	7	05		53	E	5	
	7			55	E	20	
	30	15		58 5	W	3	
	28	8		85	W	35	N t
	25	05		16	W	2	
	21		71		W	10	S l t t w d
	0	1	82		W	20	
O t l o 8 GN	8 53		8		L	10	C l h t g p h 9 l 0
	53		80		E	85	l t
	52		9		D	85	
	9 15	0	11		L	30	O l y 10 h g h t 9 l 18
	8 50	2		12	E	20	
	9 10			24	E	80	
	0	15		4 5	F	40±	S N t l
	8 58	15	25	57	W	30±	l t d t t p
	9 24	4	36		W	10	
	8 50	1	81		W	80	S N 2
	50	05	82		W	15	
						15	C l l t g p h 9 l 3 m
O c t b 4 GN	8 36	4	83		W	60	S N t
			79		I	45	O t d O
			77 5		L	30	O p m 45 l g l
	8 37		17 5		I	20	
	30		8		L	15	
	40	1		82	E	50±	40 l h O

D t d b	H I S T	B	L t t d		L m b	H h t	R m k
			N t h	S t l			
1 08							
O t b 4	G N	8 36	05	8	1	30 ±	O
— <i>td</i>		36		50	W	30	C
		33		56	W	25 ±	45 l gl C
		36		41 5	W	30	C
		37	15	16	W	0	
		36	1		W	20	P t d t t p
O t b 5	S S	9 51	(	78	I	0 ±	C l l t g l h 8h 86
		50		4	D		0 C
		17		1	T		
		12	05	18	L	10	D bl #
		8 17			D	40 ±	S N t
		5		13 5	D	1)	
		10 3		4 5	W	40 ±	10 hgl d 2 b d C
		8 31	05	28	W	0	D bl
		32		31 5	W	0	S l t t h w l
		53		82	W	80	S l g l t l y b d t t p
O t b 6	C N	9 50	05	77	T	30 ±	C p l t g p h 8 l 57
		10 1		41	E	1	C B d t t p
		1		9	E	40 ±	C
		1	8	90	E	30	C A l l l
		9 48		14	L	30 ±	
		48		17	E	30 ±	
		18		1	L	0 ±	D t l l i m l m b
		17	15	10	I	20 ±	
		51			W	40	C
		51		8	W	65	C T k l l t t p
		57		31	W	4 ±	
				1	W	20 ±	
		52			W	15	
O t b 7	G N	8 35	2	77	1	4	( p l t g p l 9 l 51 d 10 l m
		34		36	I	4	I t d t t p
		33	1	30	J	0 ±	65 hgl C
		31		21	T	60 ±	D t h l f l b H y d g b t } S N t
							t l C
		30		9	I	35	A b g h t t
		29	0		F	30	
		23	5	12	I	1	
		26		31	I	20	
		5	1	(	I	8	P t d t t p S l t t w d
		58		31	W	0 ±	C T T p t d b y d t
		58	1	17	W	0 ±	t l 35 l g h t t l h g h t p t
		41	15	1	W	0	
		23		1	W	2	C
		38	0	37	W	1	C l k
		38		39	W	1	
		37	15	17	W	10	
		36		77	W	0	
O t b 8	S S	8 57		81	1	10	C p h t g l h 8 l 3 d 5 l 58
		56		6	L	80	l t
		53	0	8	I	25	D 70 l gl O } C t d b y d
		50		26 5	L	50	3 hgl C
		31	05		E	2	2 l l C
		19		9	T	15	S l g l t l t t l w d t t l
		18		50	I	0	
		20	1	60 5	W	85	
		19	2	32 5	W	20	} C t l O
		2		11	W	25 ±	O
		16	2	7	W	15	
		10	4	14	W	30	
		8		26	W	120 ±	A b t 2 b d b t l t l l f m l b A t
							m b l 8 l g f t w d f m t t p
		5	1	38 5	W	10	
O t b 9	G N	8 58		79	E	25 ±	P g l d O p l t g l h 9 l 2 m
		9 2	2	51	E	45 ±	C
		8 58	1	24	L	20 ±	4 b l O
		9 1	1	5	T	15	C A l l k
		1	1	45	E	15	

D t n d b	H IST	B	L t t d		L m l	H g h t	R m k
			N t l	S t h			
1908							
O t b 9	GN	9 0	1	4	E	3	B l t t l
— id		8 8		13	F	40	
		J 7		79	E	10	
		5 5		33	W		
		8 58		275	W	10	30 h l C
		9 4		45	W	20	D b l
		8 58	5	7	W	20	C a l l
			58		W	50	C r l t g l l 8 58m
O t b 10	GS	8 4	1	515	E	20	AC l 40 l l t l t w p m
		22 4	4	48	E	25	
		12 1	1	5	E	45	
		J 05	1	10	E	50	S N t 1 } S N t 2
		12 1	1	115	E	0	D t l l f l b
		7 05	1	18	E	5	
		3 1	1	43	L	20	F t
		3 1	1	51	E	10	V y f t
		55 1	1	58	E	30	w t p
		49 1	1	51	W	1	
		48 1	1	48	W	0	
		20 1	1	485	W	70	S N t 3
		4 45	5	5	W	5	N t i p S l t l g l t y o r t l w d
							C l l t g l l 8 20m
O t b 11	GN	8 16		67	F	1	O
		36 15	15	5	E	40	M t t t l
		36 15	15	05	E	50	
		35 2	2	48	E	20	O t l t h t l l t p m l y C t
		33 1	1	25	J	15	
		33		Eq t	J	15	
		31 4	4	12	D	4	
		30 65	65	25	E	60	T i w d l t t w d
		25 05	05	25	E	15	D b l
		28		28	E	25	l t D t l l f m l b
		25 15	15	44	E		N w l t
		44 8	8	41	W	30 t 35	S N t
		41		19	W	15	B d t h d t p
		18		48	W	50	C F t
		37 2	2	56	W	60	l h w t d f t l p l b g t
		16		71	W	4	t l t l t h C
							O V y f t
							( p h t l l 8 18
O t b 12	SS	8 28	1	80	D	0 ±	Γ t L w l l f l t
		26 1	1	70	E	0	t l l l l l f l t
		20 05	05	515	E	60	t w l
		20 05	05	48	E	60 ±	l t
		18 1	1	3	E	25	A l t l 5 b l O
		16 3	3	5	E	25	V y f l l t t l
		10 15	15	32	E	25	
		8		30	E	5	A l t p d t w d f m t h
		6		8	E	1	t p
		3 2	2	67	D	15	O l g h t l y d p l d t l t l w h l p m
		49 65	65	68	W	15	N t p
		49 65	65	65	W	1	
		25 05	05	15	W	25 ±	C
		47 1	1	195	W	30	
		47 05	05	48	W	30	
		44 1	1	15	W	80	B l t t l
		40 7	7	65	W	45 ±	l l t l C
		35 1	1	85	W	60 ±	
		31 2	2	8	W	5 ±	S l t t h l
O t b 13	GN	8 23	15	57	L	20 ±	C l l t g p h 8 25m
		9 4		48	F	20	O l l m t l m b g t l t + 7 E
							A C t l t t h w t l t h l t p m

D t d b	H I S T	B	L t t d		L b	H ght	R m k
			N th	S th			
O t b 13 1900 — 22 GN	M						
	8 0	1	31		F	15	} C t d t t l } C t d t b A l w l d t h h t t k t g t w t h d l m b
	50	1	29		E	15	
	50	1	6		I	15	
	50	1	21		F	1	
	30			11	E	0	
	28	05		2	F	10 ±	
	50			70	E	20	
	48	15		34	W	30	} b l t t h d
	17	1		50	W	30 ±	
	9 7			31	W	15	l l p h l f d t l d f m t h l w
	7	05		26	W	15	
	8 40	2	28		W	35 ±	
	9 (	1	41		W	2	
	8 40	15	01		W	4 ±	S l g l t y b d O
	9 5	0	07		W	10	
O t b 14 GN	8 29		62		D	25 ±	O p l t g p h — 8 l 23 O g l t t w d t h t l t t l t C P C D C D
	29		58		F	25 ±	
	29	15	53 5		I	25 ±	
	24	1	50		E	0 ±	
	24	0	47		D	30	
	21	1	29		E	15	
	20		24		F	25	B d t t p
	17	1		13	F	30	
	10	1		10	I	40	} C t l t l l t l
	10	1		18	I	40	
	14	0 r		35	F	15	
	35			71	I	10	
	34			77	D	45	A l t l l l d l t F t O F i b i b g l t
	33	15		7	T	20 ±	
	32			76	F	55 ±	B d t t p O r t S l t t w d h t h d m t t l p
	21			69	W	70	
	29			60	W	70	
	31	1	51 5		W	30	
	30			32	W	1	
	30	15		29	W	10	A l t t l d t l d f m l m b d p l l l t t
	7		8		W	10	
	27		14		W	1	
	20	3	29		W	1	
	2		64		W	25	
O t b 15 S	8 38	2	84		I	20	O p h t g p l — 8 l 22m V y f t
	37		70		I	15	
	33		51 5		T	50	} M t t t p A O t k f t l t p n l y } t t l l b t L t + 56 D
	33		47 5		I	50	
	31	1	40 5		I	15	T t S N t l
	8	4		9	F	35	
	24			10	E	15	} V y f t
	9 0	1		21	F	20	
	8 20			57	F	15	A l t t h l t g t l d t h d f m l m b B l i b t d t
	16	25		59	I	50	
	58	05		75	T	10	
	5	1		71 5	W	35 ±	V y f t S l t w t w d V y f t S l t w t w l
	3			51	W	25 ±	
	50	4		85	W	40	N w p t b S N t 2
	47	15		1	W	60	
	45	1	9		W	40	P d t t p F l t t l w d
	43	1	24		W	20	
O t b 16 GN		5	51 5		F	2	O p l t g p h — 8 h 15 O
	9 30	2	49 5		T	20 ±	
	25	15	14		F	30 ±	40 l g l O
	25	3	9		F	15	
	2	15	6		D	20	
	20	1		50	E	20	
	26	1		28 5	W	20	
	26	1		2	W	15	
		05	75		W	65	O O p h t g p h — 8 h 51m



D t d b	H I S T	B	L t t d		I m b	H l t	R m k				
			N t h	S t h							
1906											
O t b 23	SS	8 14	2	73		D	15 ±	C D t l l f m l m b 55 h g l O C b l d 70 h g l } O t d w t h C F l l k C D       D b l  A l t l y m d N t t p D P n l d s g p O p l t g p l 8 l l l			
		6		60		D	50 ±				
		5		58		D	0				
		14	1	54		E	80				
		14		50		F	60				
		2	1	20 5		D	20				
		2	0 5	24		E	20				
		0	4		6	L	30				
		7 58	0 5		9 5	D	0				
		8 36	0 5		78	L	10				
		34	0 5		81	W	15				
		30	0 5		35	W	10				
		27	3 5		10 5	W	00 ±				
		25	1 5		2	W	30				
		2	4	3		W	35				
		20	2	9		W	20				
		15	3	38 5		W	20				
		O t b 24	SS	11 6		82			E	1	D b l       F t S l t w t w d l t d t t p  C l d y w t l b k
				55	1 5	56			D	35	
				12	1	3			F	25	
				10 53	2	17			L	25	
				52	1	10			P	15	
				48	2		10		E	25	
46					43 5	L	20				
46					51	E	5				
12 12	3			9		I	25				
3	0 5			78		W	15				
				66		W	00 ±				
1	1			54		W	25				
0	1			17		W	0				
0	2			9		W	25				
O t b 29	SS			8 16	2	15		E	20	D t h l f m l b P t d t t l 30 h h O  S l t t w d l t l l l y m t t t p C O p m 80 l g h C p h t p h 8 l 26 O l t	
				1			5 5	E	20		
				12			69	L	50 ±		
		1	1		28	W	2				
		37	1		12	W	25				
		35			10	W	20				
		35			7 5	W	20				
		35				W	1				
		28		51		W	70 ±				
		28	0 5	54 5		W	60 ±				
		27	2	61		W	10				
		O t b 30	GN	8 54		9		E	40		O F t D t l d f m l b S l t t h w d S t g O C F t S t A f t l d l t d t h d f m l m b C t d t t p A t m f w t h w d f m t l t p l t T p b d l g h t l y t h w d B g h t T p m t t h l t p m n B d t t p C C p h t g p h 8 h 5 l m
				20	0 5		8	E	40		
20	0 5				31	E	30				
54	3				71 5	W	30				
47					67	W	50				
54	2				56	W	30 ±				
46	1 5				49	W	40				
45	0 5				26	W	30				
43	4				22	W	45 & 30				
					18	W	20				
38					13 5	W	20				
38	0 5				11	W	0				
38	0 5				9	W	20				
35				13		W	20				
31				51		W	90				
31	1 5			54		W	50 ±				
28				84		W	40				
54		56		W	45 ±						

D t d b	H I S F	B	L t t d		L m b	H g l t	R l
			N t h	S t h			
1906							
O t b 31 S S	8 36	05	86			20	A C t l m t l m b t L t + 89 W
	36		74		E	0	H d t t p
	29	15		0	P	30	F t b l t t d
	28			2	E	5	
	26			3 5	F	50	D t N t t p
	3			43	D	20	
	21	15		52 5	L	20	N w t t l
	20			60	E	30 ±	B l t t p
	3			69	E	20	
				72		20	b l t w t d
	8	2		71	W	15	C p m
							b l t g w t d d b t 30 h g h
	7			C	W	70 ±	S t
	56			8	W	10	
	53	1		26	W	70	B g l t B d t t p
	71			17	W	1	
	0	0		14	W	20	C l
	1		15		W	5	O A t l t k
	47		11		W	15	
	13	5	51 5		W	90 ±	A b l d t l l t l t l g h t l y
	33		80 5		W	2	l b n C
N m b 1 C N							P g l n C p l t l l 8 l m
	10 30	4		7 5	F	3	
				17	D	1	
				1	I	0 ±	
	44	1		8	W	45	A l t
	17			10 5	W	15	
	4	2		23	W	70	
N m b 2 G N	44			5	W	15	
	43		4		W	80 ±	C l l
	8 19	3		8 5	I	70	
	16			38 5	D	15	
	1			18	E	30	
	1	15		50	L	60	
	15	0		51 5	I	30	
15	1		53	I	45	T p w	
22			82	I	40	C D t h d f m l b	
22	05		86	F	1	O	
30	1		80	W	10	20 l l l O	
22	2		68	W	40	C l l w	
2		40		W	20		
2	0	1		W	15	S t	
24	1	5		W	45 ±	l t 70 l g l C	
N m b 4 G N							O p l t g l h 8 l
	8 58	05	34 5		F	1	
		15	7		I	35	
	8	15	21		I	35	O t d t t j
	5	1	18		I	20	T p f w l w l 4
	54	3	7		D	0 ±	A f n t h
	53	2		10 5	E	25	
	0	05		5	I	40	O l l
				39	W	10 ±	
				36	W	10 ±	
9 3		34		W	55 ±		
1					40 ±	A w d t l d f l m b	
N b 5 G N	8 50		8		D	0 ±	A b t 2 b d t b b t l t l y d t h d
							f m l m b
	50		84		E	20	
	47		51		E	20	A d t l d l d l t
	45	1	18 5		L	30	
	45	05	33		E	30	
	45	15	28		E	40	B d t t p
	42	2	18		F	20	S t
	40	2	3		I	50	A b l l y m t l m b t L t + 8 E

D t d b	H IST	B	L t t d		L m b	H g l t	R m l
			N t h	S t h			
1906							
N mb 5 G V	8 40	1	E l t		I	20	
— id	37	1		58 5	I	40	N t t p
		1		74	E	10	
	51			56 5	W	20	O
				39 5	W	15	
		2		8 5	W	20	F t
	50	3 5		1 5	W	50	D b l N w t t p
	56		E l t		W	20	N w t t p
	52	1	35		W	20	
	51		66		W	20	
N mb 6 G N	8 53	1	38 5		L	35	O p l t g p h 51 51
	0	1	E l t		I	15	
	9 5	3 5		0	W	30	D t N w t t l
	5		6		W	20	
	1	1	10		W	20	
	2	2	2		W	40	Q t t
	0	0 5	34 5		W	40	51 t t h w d
N mb 9 S S	11 1			26	I	40	51 t t l w d
	15	1		20	I	50	
	5			31	F	20	51 t t l w l
							T l l m b w d l y f m P A 140 t
N mb 10 S S	8 51		04		F	10	180 Cl ly
	50		51		E	15	
	47		46		E	30	A d t l d l l l t
	40	2	25		E	20	T w f t l t t k m t g t i p
	44	0 5	10		E	20	l b l t l l t l l t l t l
	44		7		F	50	F t n w l t t l w d
	44		4		L	20	
	40	0 5	2		E		
	40	4		5	E	15	
	39	1		16 5	L	15	
	37	1 5		20	I	35	B g h t
	36	2		28	F	25	D b l 51 t t h w l
	9 31			6	I	40	D t l l i l m b l t t l w d
	30	1		60 5	F	2	
	10 3			87	W	40	D t l d f m l m b
				63	W	0	b l t l l t h d f m l m b A b t 2
				2	W	25	b d
		0 5	1		W	10	I k l k
	9 50	0 5	43		W	25	
	55	0 5	16		W	15	
	4		55 5		W	30	
N mb 12 S S	10 53	1	48		E	25	51 t t l w l
	6		6		E	25	
	52	1		25	E	50	
	52	0 5		26 5	I	20	
	50			55	I	25	51 t t l w l
	11 27	0 5	23		W	25	B d t t p
	25	1	3		W	45	51 t t h w l 51 h t l y l d t t l
							O l d y w t l b k
N mb 16 S S	8 7	0 5		31	I	20	
	10 2	0 5		5	W	25	N w l t b
	23	1		28	W	30	D b l l t w t w d
	9 4		19		W	20	
	47	1 5	21		W	10	
	47		23		W	20	
	8 35	0 5	71		W	30	S t
N mb 18 K V S	9 5	0 5	6		E	25	T p l y m t l m b g t t h p l
	18	0 5	57		I	20	O
	8 53	0 5	11 5		E	30	
	55	5		3 5	E	55	N w t t p
	50	0 5		30 5	I	45	51 t t l w d
				36 5	E	15	D

D t d b	H IST	B	L t t d		L mb	H ght	R m k
			N th	S th			
1906	M						
N mb 18 KVS	8 40	05		8	E	20	Sl t th d
— 12	9 5	15		8	W	25	
	20	05		2	W	0	l p b d thw d
	19		1		W	25	B d t t p
	15	2	10		W	20	B ght
			18		W	40	A l l 4 l g n t b t l w y f m
	8		20 5		W	15	lmb
N mb 19 KVS	6 5	1	88		E	35	Sl t tlw d
	3 18	05	9		E	1	C pl t g l h 9 l 18m
	8 40	1	39 5		I	10	C
	1 48	05	34		I	45	C B d t t j
	8 30	1		6	I	45	D bl n t g t t p
	9 27	05		42 5	W	1	
	48			41	W	20	O A C l d l t t 60 l h f t b t
	0	10			W	20	Tl l t d t t l
	11	1	8		W	25	B d t p
	10	15	27		W	30	Sl t th l
	(	1	3 5		W	40	D
	5	3	30		W	5	D bl th tw b g t l t h th
N mb 22 SS	14 (	0		49 5	D	10	O l h t 5 l l 18m
	51	05		81	I	30	Sl t tl d
	8			21	W	30	D t h d f m h b 2 b d t b n w t
	27			23	W	20	t l
	25	05		17	W	20	
	21			2	W	15	
	21	05	42		W	40	
	1		1		W	25	
	20		48		W	30	
N v mb 23 SS	8 3	0	69		F	1	l t i t t p
	34	15	11		I	35	D
	33	05	37		F	15	Sl t tl d
	31	05	35		E		
	30	1	80		I	10	D bl
	21	1	21		I	20	S N t
	20	0	11		I	60	B ght S l g l t l y b d th m d l l
			7		I	20	
		1	1		D	1	
	21	1		29	I	10	
	11	05		1	F	30	
	1	1		62 5	F	20	P t d t t p
	9 0	05		83	I	2	
	8 56			33	W	15	
	5			29	W	15	
				2	W	1	
	58			19 5	W	40	
	51		3		W	10	A l t t l d t l d f m d l l l t l m b
	40	2	7		W	30	H l l t t p
	46		21		W	20	l t tlw d
	44	2	80		W	20	D bl
	42	1	40		W	30	
N mb 26 SS	8 41	1	74		E	20	O pl t g p h 9 l 11
	39	3	58 5		F	30	D bl
	37	1	42		F	10	S N t l
	38	0	16		D	50	V y f t
	30	15	8		I	10	B ght m t l l
	29		3		I	30	S N t 2
	26				I	30	V y f t
	24			27	E	1	
	23	1		38	L	25	
	9 0	1		50	F	10	
	8 56			72 5	W	10	A f t
	27			07	W	15	I k l l
	58			32	W	20	O
	50	1	15	27	W	25	Sl t w tw d
	47		35		W	10	
	46	8	48 5		W	15	

D t d b r v	H IS 1	B	L t t l		L m b	H g l t	R m k
			N t h	S t h			
190(	H						
N mb 26 SS	8 4	05	85		W	25	S m t l b y g l t k O l h t g p h 8 h 27
N mb 7 SS	14 0 13 55 14 0 4 05 7 15 10 2 1 1 17	0 05 15 05 15 2 1	88 39	48 78 0 5 12	D E F E W W W	50 ± 20 25 30 30 15 25 20	B d t t p D b l
N b 8 SS	8 8 27 24 21 18 5 48 45 40 38 35 33	15 0 2 15 6 1 15	26 15	21 50 78 69 18 13	E D L F D W W W W W	10 15 10 25 25 35 10 ± 10 30 15 20 40 ±	F t F t t l d t h d f m l m b Slightly b d w t w d t t p S N t 1 S N t 2 S N t 3 D b l 50 h g h O O p h t g i h 9 h 11
N mb 9 SS	10 10 7 5 3 9 5 8 46 14 3 10 15	05 05 15 4 25	735 225 185 2	8 16 23	D L D D L F L W	30 ± 30 0 4 20 20 20 80	F t S l t t h w d F g m t y B d t t p S N t
ml 30 SS	2 55 54 3 85 8 9 9 4 41 40 37 35 3 32 32 9 28 19 13 13	15 1 4 15 1 15 2 1 1 2 1 1 15	25 13 95 15 21 26 54 67 77 80 69 38 28 7 4 2 4 275 51 84 88	15 21 26 54 67 77 80 69 38 28 7 4 2 4 275 51 84 88	P L L F D E D L D W W W W W W W W W W W	15 L w 20 85 35 25 20 20 10 15 35 15 10 75 10 60 10 25 30 25 60	O t d t t h n t p m B g h t m t l l D b l l t t l w d } O t d t t p N w t t p S h t l t d t h d f m l m b S l t t w d l t h l m t t t p F t T w l t g t k t h p p h l f w h h C l d y w h b k
D mb 2 SS	8 37 35 35 34 33 3 27 24 54 52	1 7 15 25 15	315 25 15 4 3 38 82 65	3 38 82 65	E D D F E E E F L W	15 20 25 20 10 50 70 5 10 20	N w t t p F k l k t t p H g h t t t l t h d d l w t t t h S l t t h w d A t m b t 4 l g f w s u t h w d f m t h t p N w t t p S l n t t h w d F t

[illegible]



D t d b v	H I S T	R	L t t l		L m b	H h t	R mark
			N t h	S t h			
1900	M						
D mb 16 S b	11 7			7	W	30	O t d by C l
- t d	7			15	W	30	
		0		53	W		O t d O
	(	0		0	W	40	
				11	W	5	
	1			37	W	50	
	8			315	W	(0	
	2	3		20	W	0	
	1	1		65	W	8	
	10 50	1		05	W	15	
			5		W	30	S N t e l
					W	60 ±	S V t
							P t l d O p h t g p h l l 23m
D mb 10 S S	8 77		18		E	40	Ab t 8 b d b t d t h d f m h m b
	50	15	3		E	40	N w t t p
	51	1			D		
	5	(		6	I	5	Sl t t l d
	10	2		17	k		D
	17			10	l	10	
	4	3		7	E	40 ±	V y f t
	1	1		61	W	35	Sl h t l y b d t t p
		1		1	W	30	P t d t p
	1	1		41	W	5	C p m b t 50 h g h a n d m t t h t
	17	1		87	W	5	M t g t t p
	17	1		88	W	7	
	1	1		4	W	20	
	19	1 r	10		W	40	S N t 1
	7		28		W	150	S N t 2
	7	1	3		W	90	C t d t t h
	7	1	37		W	90	
D mbe 18 S S	8 43	1	87		E	25	C p h t g p h 9 h 48m
	10		54		E	30 ±	V y f t Sl t t h w a r d S l i g h t l y b d
	3	1	75		E	25	Sl t t h w d
	31		13		E	20	D
	88	1	7		E	0	D
	20			44	D	80	Sl t h w d Sl h t l y b d t t p
	)	1		46	I	15	O l k
	9 1	1		4	W	25	N w p t b
	8 75	2		30	W	120 ±	S N t
	5			85	W	80	A t l t l w y f m l m b
	40				W	25	Sl t t h w l
D mbe 19 G N	9 8	1	975		E	40	B d t t p
	(		5		E	0	
	5	1 r	9		E	15	
	5	2	215		E	10	
	4	15	17		E	20	
	8	1	85		E	10	
	1	1		215	D	30 ±	
	0	1		17	E	60	S m t d b y b d h t
	8 78			58	r	30	
	9 19	05		1	W	10	
	18	07		45	W	10	
	12		85		W	10	
	10	15	41		W	30 ±	
D e mb 20 S S	9 18	2	30		F	20	V y f t Sl t t h w a r d
	2	1		225	E	30	F t
	8 58	15		455	E	40 ±	F t
	57	1		18	L	60 ±	
	70			605	E	20	
	55			71	D	10	
mbe 22 S S	9 5	05	87		E	45	S g b d
	3	15	57		E	20	w t t p



D t nd b	H I S l	B	t d		L b	H ght	R m k
			N th	S th			
1906	m						
D mb 22 SS	9 0	05	45		E	50	} C t d t t p B th l n t t l w d
— ntd	0	15	42		E	50	
	8 57		32		F	25	N w t t p
		15	11		F	0	
	5	6	5		E	0	N w t t p
	52	25		28	E	35	
	50			47	E	50	
	48	05		58	E	0	
	48			59	F	40	
	48			64	E	30 ±	D d t t w b h t t l
	9 21		46 5	7	W	30	
	19	05			W	20	
	18	15	25		W	1	
	17	2			W	15	N w t t p
	15	2	14		W		
	14	15	21		W	15	
	11	1	48		W	10	
	10	15	50		W	30	
D mb 23 b S	8 46	1	86 5		F	70	B t n t l d t k w t t o p
	41	2	47		L	80	
	40	1	35		D	2	S l t t l w d N w t t p
	39		18		D	10	
	38	1	105		E	10	D b l
	35	1	4		E	90	
	33	1		22	D	5	T l k
	31			30	F	25	
	30	25		61	E	35	
	9 5	05		77 5	W	10	V y f t
	4			71	W	15	
	3			60	W	20	F t
	0			52	W	20	
	0	2		50	W	40	C l k
	8 57			19	W	10	
	57			15	W	15	
	54		7		W	10	
	54		9		W	10	} C t d t b B ght m t l l
	54	2	11		W	20	
	54	1	15		W	10	
	49	25	48		W	3	N w t t l
	49	05	52		W	1	
	47		78 5		W	0	S l t w t w d N w t t p
D mb 24 G N	8 39	1	34		F	30 ±	F t
	38		4		L	50 ±	
	9 3	1		45	E	0 ±	A l d l t b t 4 l g w y f m l m b
	30	1		80 5	D	25	
	45	25	50		W	45	D b l
	4	05	80		W	0	
D mb 25 G N	9 12	15	44 5		E	30 ±	
	10		27		F		
	9	5	11 5		E	10 & 20	B ght
	8	3		14 5	L	10	
	3			6	E	40	A l d l t l m b
	1	05		83	l	15	
	42	05		67	W	20	
	40	15		23	W	4	S N t
	28	2		65	W	3	
	24		65		W	40	A t l f m t h t p m t l m b g t L t -
	22	25	11		W	20	
	22	7	18 5		W	10 & 20	B ght
	19		28		W	2	
	16	2	50		W	45	B ght o o t
	15	1	58		W	60 ±	
	14	1	82		W	60	F t
D mb 29 G N	9 31		30 5		E	40	} y b ght O t d b y t k
	28	45	26		E	50	
	28	35	18		E	60	
	17	15	)		E	75	

D t d b	H I S T	B	L t t d		I n l	H l t	R m k
			N t l	S t h			
1308							
D mb 9 GN	9 14				I	4	
— t d	10	1		26 5	F	100	
	7			3	I	10	S N t
	3	0		3	I	20	
	0	1		02	I	10	
		1		8	E	15	D b l y f n t
	5	0		81	L	30	y i t
	(	0 5		05 5	W	1	
	45	15		44	W	45	
	1	1		40	W	1	S l d d m t l l t p m n
	43	15		32	W		V y l g h t
	43	3		2	W	20	D
	41	0		13	W	20	
	40	1	2		W	30	I t
	4		33		W	2	I
	36	2	40		W	45	I t f l m t l p t d t t p
D mb 30 GN			0		E	10	
	10 25	6	27		F	0	
	2	1	12		E	10	V y b g h t } C t l
	22	35	9		I	40	D
	20			4	I	1	
	19	4		31	I	7	V y l g h t
	1	1		88	I	30	D
	1	15		5	I	2	
	14	0		07	F	10	
	1	2		43	W	1	
	30	1		3	W		S l t t h w d
	39	1		31	W	10	D
	38	0		1	W	5	
	37			1	W	35	D t h d f m l m b
	38	10	8		W	10 0	S l t l y b d t t p
	30	0	30		W	30	E t
	30		18		W	10	D
	29		40		W	1	D
D b 31 GN	9 11	1	60		D	10	
	10		55		L	1	
	)	15	3		E	15	
	)	2	20		I	3	
	7		35		L	1	A f t r g l t l l g d t l d f m
	(	2	18 5		E	20	l m l
	6		16		E	2	
		1	3		I	2	R l d l y k n g } I t l y b g h t C l g l t l y
		1	10		I	20	d l l d t d
	8 5	1			I	15 45	
	4	3		98	I	140	
	14	0		37 5	I	30	
	33	2		51	L	20	
	37			80	F	35	
	36	0 5		86	E	30	D p p d + 9 10
	10			84	W	15	
	37	0 5		75 5	W	0	B l t h m l d l
	36	1		03	W	20	
	40	10		41	W	1 0	B g l t h g g
	22	1	)		W	10 50	B g l t
	17		37		W	40	
	16		47		W	00	B d t t p
	15		50		W	40	

## REMARKS ON THE DISTRIBUTION OF THE PROMINENCES IN 1906

During the first half of the year the general distribution in latitude of all classes of prominences was very much the same as in 1905 there being two regions in each hemisphere where prominences were specially numerous separated by a narrow zone where they were almost absent

The positions of the zones of maximum activity in the period January 1st to June 30th were at latitude  $+25/30$  in the northern hemisphere and  $15/25$  in the southern. These are practically the same as were observed in the previous year.

The zones of secondary maxima in high latitudes show however an increase of 10 in latitude as compared with 1905 being situated between parallels  $+70/75$  in the northern hemisphere and  $-75/80$  in the south. The zones of minimum activity intervening between the high latitude and mid latitude prominences also advanced from latitude  $55/60$  in both hemispheres to  $+60/65$  in the north and  $-65/70$  in the south.

The strong development of prominences near the equator and in mid latitudes which became evident in 1903 and has continued since that date appears to be correlated with this advance of the high latitude zones towards the poles and the year under review is of especial interest as marking the culminating point in the prominence period when the high latitude zones finally reach the polar regions and prominences are seen at the position angles of the poles themselves.

In the years preceding 1894 a similar sequence of events took place culminating in the final dissolution of the polar prominences at about the epoch 1895 0

The second half of the year is characterised by a great reduction of activity in most zones but mainly in the northern zone between the parallels + 15 and + 35 which up till June had displayed by far the greatest activity of any region on the sun. Pola prominences are still shown but greatly reduced both in number and size.

In the following abstract tables are given showing the monthly quarterly half yearly and yearly frequencies in the two hemispheres. It may be remarked that some portion of the general reduction of activity shown after the month of May may be apparent only being due to the less favourable condition of the sky for observation during the latter half of the year. Excepting in the latitude analysis in deriving the mean frequencies per diem no allowance has been made for partial observations or those which are considered defective from the presence of thin cloud. Thus on 21 out of the 274 days of observation the sun's limb was not completely examined and probably there are many others particularly in the second half of the year when owing to the presence of thin cirrus cloud only the brighter prominences were recorded.

If allowance is made for the partial observations the half yearly frequencies work out as follows —

P	d	N mb d y	f b t m t n	g l d y	M	f l N th	y p S th	d m	T + l m f q l m	y p
January 1 to June 30		156			10 8		10 0		0 8	
July 1 to December 31		105			7 3		7 8		15 1	

Fifty one metallic prominences were observed during the year. They were with one exception confined to the sunspot zones and were far more numerous in the northern hemisphere than in the southern. The following table gives the mean and extreme latitudes observed for the 50 ordinary metallic prominences —

	N mb	d d	M	L t t d	D t m	L t t u d
No th	38			+ 19 8	+ 1	+ 32
South	12			- 0 0	- 6	- 28

The exceptional metallic prominence was observed on May 5 in latitude  $-76$  and was  $70$  in height. In general these prominences are small and very bright seldom exceeding  $30$  in height. The bright lines observed in their spectra were those of sodium, magnesium and some of the enhanced lines of iron.

**LARGE PROMINENCES** —Thirty four prominences exceeding 2 in altitude were recorded during the year 18 in the northern and 16 in the southern hemisphere. The greatest altitude observed was on May 16 in latitude - 78° W. In the calcium photograph this prominence could be traced to 350 above the chromosphere. Another on May 19 reached 240 in calcium at latitude + 80° E. On February 19 a large prominence in the mid latitude zone of activity (lat + 33° E) reached 180 in calcium but no others were recorded exceeding 160 and no great eruptions were recorded.

I t m t g t h t t y f t t k f t h m w l l f t h m m b f p m b d  
 n t h t n

## ABSTRACT FOR 1906

1906	f d t	f p	f y	f t	l h l m l l		M h l g ph l t t d	
	N mb f b	N mb mm	M n d l y	M n l t	t l	s	th	th
J n y	7	5	06	267	97	107	414	390
F b y	7	573	1	330	115	100	442	413
M h	29	592	04	322	107	98	390	418
Ap l	8	616	2 0	3 4	111	109	391	433
M y	30	65	18	315	117	101	117	142
J n	18	4	13 4	29	60	54	388	391
J ly	19	230	12	7	64	60	843	397
Aug t	15	218	14	307	76	0	304	412
S p mb	2	23	134	2 3	61	0	72	319
O t b	1	32	1 3	301	0	8	415	387
N b	18	217	121	275	61	59	3 6	360
D mb	20	319	160	321	79	81	326	433
I t q t	88	1 23	08	305	106	10	415	40
S d q u t	76	1513	191	319	103	88	393	431
Th d q	56	75	185	298	68	67	360	38
F t l q t	9	8 8	145	303	70	4	376	398
I t h l f y	19	3 36	200	313	104	15	04	410
S d l f y	11	1410	140	98	60	0	371	387
Y 1906	274	4811	170	306	86	82	388	403

H l g r l l t t d f p m 1906				N m f p l d 1906				M d l y f q 1906 (21 d y)
				F t l t	S d l t	Th d l t	I t l l t	
N th				39	67	22	31	106
				156	94	32	20	250
				0	35	14	11	10
				46	54	27	0	100
				112	71	65	54	188
				105	114	3	50	219
				139	134	57	80	278
				120	180	68	4	250
Eq t				90	98	59	58	188
				0	4	4	4	10
S tl				119	80	108	62	199
				86	10	194	61	191
				114	75	318	56	189
				92	68	190	4	160
				87	83	175	44	170
				91	98	191	62	184
				56	55	35	44	111
				130	93	35	35	223
				64	52	63	2	116

\* I l d g p t l b t 21 d y

## NOTES

1906

- July 9 Lat - 59 E A bright slender streak 20 high with a faint streamer flowing southward from the top
- 10 Lat + 44 + 46 5 + 49 5 + 51 W A Ca streak about 30 high and parallel to limb passes across these four prominences
- 12 Note 1—Lat - 6 E Very faint Ca prominence is 30 high and extends to Lat + 2 E and is 35 high at the northern end
- Note 2—Lat - 18 5 E No prominence in this position but F was displaced 1 A to red and 0.5 A to violet D<sub>3</sub> also was slightly displaced both ways 4921.1 b b b, 5316.8 D and D were bright At 8<sup>h</sup> 37<sup>m</sup> the displacement almost completely disappeared but there was a sharp vertical streak 25 high in its place At 9<sup>h</sup> 48 it was a faint prominence 15 high and about 0.5 broad
- Note 3—Lat + 3 5 W A cloud floating above limb with its top brighter than the base It extends as far as Lat + 11 W in Ca
- Note 4—Lat + 17 5 W No prominence in this position but C was slightly displaced both ways
- 25 Lat + 36 E Top bends down and meets limb at the base of the last prominence
- August 2 Note 1—Lat + 84 E Base is slightly broader height 60 and the top nearly meets limb again at Lat + 76 E in Ca U<sub>1</sub> part faint in hydrogen
- Note 2—Lat + 42 5 E Ca prominence is 30 high and a streamer flows northwards from its top Faint in hydrogen
- Note 3—Lat + 19 E Top flows in both directions but more towards east 90 high in Ca
- 7 Note 1—Lat + 10 E A long bright cloud about 8 long 75 high at the eastern end and 150 at the southern
- Note 2—Lat - 8 5 E Faint An arch extends northward from this position meeting the limb at Lat - 5 E
- 8 Lat + 9 E A short streamer proceeds southwards from the top
- 9 Lat + 42 E Ca A streamer flows northwards from the top The prominence was photographed on a focculi plate
- 12 Lat + 28 W Top flows northwards and meets that of the next prominence
- 15 Note 1—Lat + 48 E 100 high in Ca Top of the Ca prominence meets limb again at Lat + 59 E and also meets on the other side the top of the next prominence
- Note 2—Lat - 48 W A cloud about 4 long and 75 high proceeds westwards from above this position It meets limb at Lat - 42 W in Ca
- 29 Lat + 8 W A bright cone with a faint extension proceeding from the top Faint in Ca
- 30 Lat + 44 5 E Slightly slanting eastwards Not found in Ca Ca prominence is on the other hand a streak 60 high and slanting northwards
- 31 Lat - 69 W Ca A cloudlet connected to limb by a very slender streak
- September 2 Note 1 Lat - 26 W A short streamer proceeds westwards from the top It meets limb again at Lat - 18 W in Ca
- Note 2—Lat - 6 5 W 30 high in Ca but it is narrow except near base Metallic C displaced slightly to violet at several places
- 3 Lat - 4 W A short bright vertical jet detached from limb C displaced 1.5 A to violet
- 6 Note 1—Lat 41 - 44 E Very faint Both slant southwards Ca prominence covers both is narrow at top and 120 high
- Note 2—Lat + 32 W Faint Ca prominence is 30 high and a streak flows northwards from its top till it nearly meets the next prominence
- 8 Lat + 34 W Fork like at top A streak from the top meets base at Lat + 30 W in Ca
- 10 Note 1—Lat + 46 E Ca prominence 45 high and has two short streamers flowing northwards

1906

- September 10 Note 2 — Lat + 41 E Broader at top Ca prominence 50 high and bends northwards at top  
—*cont'd*
- 11 Lat + 44 L A Ca streak runs across it and meets limb at Lat + 38 and Lat + 46 E  
Another short Ca streak at top
- 14 Lat + 45.5 L Very faint Slants northwards Ca prominence about 45 high and proceeds nearly as far as the top of the last prominence
- 15 Note 1 — Lat + 49 E C A cloud about long connected to limb by a slender slanting streak  
Note 2 — Lat + 16 E Surmounted by a short streak The streak is longer and passes through the top of the last prominence in Ca
- 17 Lat — 13 — 2 E Ca prominence quite different in form It is a long arch 40 high with a slanting column 60 high at the southern end
- 24 Lat — 4 L Slants southwards The height was about 60 at 10 15 when the seeing was better
- 26 Lat + 47 E 9 high in Ca A streak from top meets the limb at Lat + 55 E in Ca
- 27 Lat + 4 E Ca prominence 3 high and short streamers flow both ways from the top
- 28 Lat — 54 W Connected in Ca to prominence at Lat — 51 W by a streak
- October 1 Lat — 59 W Double the taller one being detached from the other and from the limb
- 2 Lat — 26.5 W From this prominence two streamers flow northwards one from its middle and the other about 6 long from its top
- 3 Note 1 — Lat — 42.5 E A slanting cloud 100 in vertical height narrow at base the base being 40 away from limb Only a faint trace in Ca  
Note 2 — Lat + 30 W A faint rectangular cloud floats above it in Ca making the total height 60
- 4 Lat + 83 W Ca Top connected to that of the next prominence by a very faint Ca streak
- 5 Lat — 13 E A streamer flows southwards from the top over about 7 the southernmost point of it being 10 away from limb The streamer was about 3 long at 8<sup>h</sup> 17<sup>m</sup> and 7 at 10<sup>h</sup> 6<sup>m</sup>
- Lat + 0 + 21 E Connected by a curved Ca streak at top its highest point being 70
- 10 Note 1 — Lat — 11.5 E A slanting streamer proceeds from the southern end its highest point being 110  
Note 2 — Lat — — 10 — 11.5 E Connected at top Bright in hydrogen but only a very faint trace in Ca  
Note 3 — Lat + 18 W Ca faint Slants northwards till its top nearly meets that of the next prominence
- 11 Lat — 49 W Two irregular arches connected to one another Ca photograph shows a double prominence 3 broad and 35 high at the western end and a low band quite separated from it at the southern
- 15 Note 1 — Lat — 3 E Slants southwards Top narrow A streamer 4 long flows southwards from the middle of it  
Note 2 — Lat — 1 W Slants southwards A short broad streamer flows southwards from the top The streamer meets the last prominence in Ca
- 30 Lat — 26 W Ca prominence 50 high and slants northwards till it meets the next prominence
- 31 Lat — 6 W Ca prominence 70 high and slants southwards
- November 2 Lat + 51 W Ca A Ca streak connects the top of this with the base of the next prominence
- 5 Lat + 18 E Top flows southwards over 4 Shape size and position almost exactly the same as on the previous day
- 16 Prominences were observed except between P.A. 180 and 230 Very bad seeing
- 23 Lat + 21 E Two prominences slanting in opposite directions and meeting at base
- 26<sup>h</sup> Note 1 — Lat + 56.5 E Narrow at top Faint Ca prominence is 10 high and extends nearly to Lat + 50 E

1906

- November 23 Note 2—Lat +8 E Double A Ca streak proceeds from the top of this prominence passes through that of the next and meets limb at Lat -2 L  
—*contd*
- 28 Note 1—Lat -18 W Divides into two broad branches at top lying one on each side of it the northern one bending down and nearly meeting the next prominence  
Note 2—Lat -1 W A slanting Ca streak about 50 high lies over the prominence but detached from it  
Note 3—Lat +12 W Bright metallic Mg Fe Na lines strong Prominence not found in Ca
- 29 Western limb was not examined on account of clouds the eastern was examined during short breaks
- December 3 Note 1—Lat -53 E Slants eastwards A short branch branches southwards from near the top  
Note 2—Lat +49.5 W Quite different in shape in Ca A bank about 20 high connects this and the next prominence in Ca
- 4 Note 1—Lat +39 E Tallest at the eastern end Ca prominence is generally slightly higher is 65 high at the eastern end and extends 1 further north  
Note 2—Lat +19 E Double one of them the upper being detached from the limb and from the other prominence It is however connected to limb at Lat +1 in Ca  
Note 3—Lat -26.5 E Changing very rapidly The greatest height in Ca was 60 at 8<sup>h</sup> 46<sup>m</sup> and 100 at 9<sup>h</sup> 18  
Note 4—Lat -87 E Ca prominence pointed at top as in hydrogen but extends 2 westwards at base  
Note 5—Lat +8 W A Ca streak from the top meets limb again at Lat +4 W Another Ca streak from the top meets that of the prominence at Lat +16 W  
Note 6—Lat +16 W Divide into two branches at top one of which meets the Ca streak from prominence at Lat +8 W (see note 5) and the other meets limb again at Lat +21 W Ca prominence more continuous and 60 high  
Note 7—Lat +23 W No prominence in this position But C was displaced about 6 Å to red at 9<sup>h</sup> 8 The displacement disappeared within 3 minutes after that
- 5 Note 1—Lat -23 E Slanting tree like A branch from near the top hangs down and nearly meets the next prominence The prominence was clearly seen in the Ca flocculi photograph up to 150  
Note 2—Lat +50 W A faint slanting streak proceeds westwards from near the top as far as Lat +15 W where it is about 60 high  
Note 3—Prominences were observed hurriedly during breaks in clouds I A 0 -115 was not examined
- 15 Note 1—Lat +9 W The prominence narrows in the upper half into a narrow strip about 5 long flowing northwards  
Note 2—Lat +32 W The western end is tallest and a short streak flows northwards from its top
- 16 Note 1—Lat +10 W Separates into two branches covering about 8 from end to end at top  
Note 2—Lat +28 W A cloudlet far away from the limb but nearly connected to the top of the next prominence by a narrow streak
- 18 Lat -36 W Slants southwards Faint tree like More discontinuous at 9<sup>h</sup> 35  
25 Lat -23 W Two streaks proceed westwards from it the lower one meeting the limb at Lat -17 W  
29 Lat -32.5 E Divides into two branches at top one of which meets the last prominence at top An irregularly shaped cloudlet floats between the two

SOIAR PHYSICS OBSERVATORY  
KODAIKANAL  
June 24 1906

}

J EVERSHED  
Ag Director Kodakānal and Madras Observatories

P

# Kodaikanal Observatory.

BULLETIN No XI

## WIDENED LINES IN SUNSPOT SPECTRA

No 877 (Gr 5895)

LAT — 11

LONG 41

CLASS—I IIa IVb IIb IVa

Date—1906 July 2 3

W l gth	M W d g	N ml Ob t f
4862 0 9	7	1
4864 919	9	1
4875 671	8	1
4885 64	6	2
4965 107		1
5001 165	7	1
5009 829	6	2
5013 479	7	1
5016 840	7	1
5023 0 2	7	1
5045 582	7	2
5053 056	6	1
5066 174	7	2
5085 341	5	1
5087 239	6	1
5120 592	4	1
5134 697	4	1
5138 270	6	2
5138 690	7	1
5138 890	4	1
514 652	7	2
5150 363	6	2
5156 823	4	1
5160 419	4	1
5163 074	4	1
5219 87	6	2
5225 695	6	1
5426 474	8	2
5460 572	7	2
5490 867	7	2
5490 905	6	1
5627 859	6	2
5671 071	7	2
567 047	8	2

W l gth	M W d	N mb Ob t f
5703 797	6	1
5727 873		1
5731 437		1
5 77 288	8	2
5743 645	9	1
Ob	—SS d GN	

No 880 (Gr 5898)

LAT + 21

LONG 7

CLASS—IVa IVb

Date—1906 June 30 July 2 3 4 7 10

W l gth	M W d g	N mb Ob t f
4861 919	8	4
4868 451	5	1
4870 823	6	1
4875 671	7	2
4885 264	6	3
4965 107		3
5001 165	7	2
5009 829	6	
5016 840	4	1
5023 0 2	6	3
5025 749	4	2
5043 761	5	1
5045 582	7	6
5053 056	5	1
5066 174	7	
5071 666	6	1
5085 341		1
5087 239	6	2
5117 071	4	1
118 112	4	1
5120 592	4	2



W l gtl	M W d g	N mb t f Ob
5134 697	6	2
5136 270	5	2
5138 890	4	1
514 652	7	6
5150 363	6	5
5156 823	5	1
5160 419	5	1
5163 074	5	1
5219 875	7	4
5 25 695	6	1
5260 561	5	1
5426 474	7	6
5460 572		6
5490 867	6	4
5627 859	6	6
5671 071	7	6
5672 047	7	6
5703 797	6	2
5707 873	5	2
5727 873	5	1
5731 437	5	1
5737 298	7	6
5743 645	8	4
5866 675	5	
Ob	-SS	d GN

## No 884 (Gr 5903)

LAT + 21

LONG 342

CLASS—I IVb IIa IVc IIIb

Date—1906 July 11

W v l n th	M W d g	N b t f Ob
5009 829	4	1
5045 58	4	1
5066 174	4	1
5087 239	4	1
5147 652	5	1
5150 363	5	1
5219 875	7	1
5426 474	5	1
5460 572	4	1
5627 859	5	1
56 1 071	5	1
5672 047	5	1
5727 873	6	1
5731 437	6	1
5737 288	7	1
O	-GN	

## No 892A (Gr 5912)

LAT + 18

LONG 200

CLASS—IVb IIa IIIb IVa

Date—1906 July 12 13

W l gth	M W d g	N mb t f Ob
4864 919	7	1
4965 107	4	1
5001 165	6	1
5009 829	6	2
5045 582	6	2
5053 056		1
5066 174	6	
5087 239	5	1
5147 65	6	2
5150 363	6	2
5219 8 5		1
5426 474	7	2
5460 572	6	1
490 867	6	1
5627 859	6	2
5671 071	6	2
5672 047	6	2
572 873	5	1
5731 437		1
5737 88	7	2
743 645	7	1
Ob	SS	d GN

## No 899 (Gr 5923)

LAT + 4

LONG 104

CLASS—IIa IIIa IIIb

Date—1906 July 24 26

W l gth	M W d g	N mb t f Ob
4869 843	7	1
4864 919	5	2
4875 071	5	1
4885 264	5	1
5001 165	6	2
5009 829	5	1
5045 582	6	
5066 174	6	2
5136 270	7	1
5147 652	6	2

W l th	M W d g	N mb O t f
51 0 883	5	2
54 6 474	4	2
5460 2	4	1
5490 367	4	2
5627 8 9	4	2
5671 071		2
5672 047	5	2
737 288	c	
5743 64	c	2
Ob	-SS	

## No 905 (Gr 5931)

LAT + 22

LONG 1

CLASS—IVb IVa

Date—1906 July 28 August 6

W l n th	M n W l g	N mb Ob t f
486 783	7	1
4863 833	7	1
4864 919	8	2
487 671	8	
4885 264	6	2
5001 165	6	
5009 8 9	7	1
504 582	8	2
5066 174	)	2
5130 543	8	1
5134 697	7	1
136 270	8	2
5138 690	8	1
5143 901	6	1
5147 652	7	2
5150 363	8	1
5219 875	6	2
5 25 695	6	2
5300 578	8	1
5426 474	8	2
5460 572	7	1
5490 367	7	1
5490 905	6	1
5627 859	6	2
5671 071	8	2
5672 047	8	2
5 37 88	8	2
5743 645	8	2
Ob	-SS	

## No 907 (Gr 5933)

LAT — 16

LONG 25

CLASS—I IVb IVc

Date—1906 August 2

W l gth	M W d g	N mb Ob t f
4864 919	8	1
487 671	7	1
4885 264	6	1
5001 165	7	1
5009 829	7	1
5045 58	8	1
5066 174	9	1
5136 270	8	1
5138 690	7	1
5147 6 2	7	1
150 363	7	1
19 875	6	1
5426 474	10	1
5460 572	8	1
5490 367	7	1
5490 90	6	1
5627 859	6	1
567 071	9	1
5672 01	9	1
5700 40	7	1
703 797	7	1
07 204	7	1
5727 873	6	1
731 137	6	1
5737 288	10	1
5743 64	J	1
Ol	-SS	

## No 908 (Gr 5935)

LAT + 18

LONG 200

CLASS—IVa

Date—1906 August 12

W l gth	M W l g	N mb Ob t f
4965 107	4	1
5009 829		1
5043 761	4	1
504 582	4	1
5066 174	4	1
5138 890	5	1
5147 652	5	1
5150 363	5	1

W l th	M an W d g	Numb Ob t f
5219 875	6	1
5426 471	4	1
5460 572	5	1
5490 867	4	1
5627 859	6	1
5671 071	5	1
5672 047	5	1
572 873	4	1
5731 437	5	1
5737 288	6	1
Ob	-G N	

## No 924 (Gr 5946 )

LAT + 22

LONG 355

CLASS—IVa IVb IVc

Date—1906 August 29 30 September 2

W l gtl	M n W d	N mb Ob t f
4864 919	9	2
4875 671	7	1
4965 107	5	1
5001 165		1
5009 829	6	3
5023 052	8	2
504 582	6	3
5066 174	6	3
5134 697		1
5136 270	8	2
5147 652	7	3
5150 863	7	3
5219 875	6	1
5426 471	6	3
5460 572	5	3
5490 867	6	
5 38 025	5	1
5627 859	6	3
5671 071	6	3
5672 047	6	3
5703 797	7	1
5707 204	7	1
5727 873	5	1
5731 437	5	1
5737 288	7	3
5743 645	8	2
Ob	-S S d G N	

## No 926A (Gr 5950 )

LAT - 7

LONG 24

CLASS—IIIa V IVc

Date—1906 August 31

W l gth	M n W d g	N mb Ob t f
4861 919	8	1
4875 671	6	1
5001 165	6	1
009 829	6	1
5023 0 2	7	1
5043 761	8	1
5045 582	8	1
5066 174	8	1
136 270	7	1
5147 652	9	1
5150 863	9	1
5300 78	7	1
5426 474	8	1
5480 572	7	1
490 367	6	1
5627 859	6	1
56 1 071	7	1
672 047	7	1
737 288	8	1
743 645	8	1
Ob	-S S	

## No 931 (Gr 5956 )

LAT + 4

LONG 273

CLASS—IVa IVc IIIb I

Date—1906 September 1 3

W l th	M W d g	N mb Ob t f
4965 107	4	1
5009 8 9	4	2
5043 761	4	1
5045 582	4	1
5066 174	4	2
5147 652	6	2
5150 863	6	2
5156 823	4	1
5219 875	6	2
5426 4 4	5	2
5460 5 2	4	2

W l gth	M W d n g	N mb Ob t f
5588 0 5		1
627 859	(	
5071 071	4	2
5072 047	4	2
7 878	5	1
731 437		1
Ob	-G \	

**No 932 (Gr 5958 )**

LAT - 11

LONG 267

CLASS—I IIa IVa

Date—1906 September 4 6

W l gth	M W d g	N mb Ob t f
4864 019	6	2
4875 071	5	1
4885 261	5	1
4928 511		1
5001 165	6	
5023 0	6	
045 582	7	
5066 174	8	2
136 270	7	
5147 052	7	2
5150 368	6	2
460 5 2	3	1
490 367	8	1
5627 8 9	4	1
071 071	5	1
5672 047	5	1
5737 88	6	1
743 64	6	1
Ob	-S S	

**No 934**

B th spots observed t gethe

(Gr 5960 )

LAT + 18

LONG 218

CLASS—IVa IVb I IIIb I

Date—1906 September 10

W l gth	M W d n	N Ob b t f
4864 019	6	1
4875 671	5	1
5001 165	5	1
5045 582	(	1
066 174	7	1

2

W l gth	M W d	N mb Ob v t f
5147 652	7	1
5150 368	6	1
490 367	4	1
627 859	8	1
5671 071	1	1
56 2 047	4	1
5708 797	3	1
5707 204	3	1
5787 288	4	1
5743 04	4	1

Ob v -S S

**No 936 (Gr 5961 )**

LAT - 23

LONG 199

CLASS—I IIa IVb

Date—1906 September 9 11 12

W l gth	M W l g	N mb Ob t f
4864 019	7	1
487 671	(	1
4885 264	5	1
001 165	(	1
5009 820	6	3
043 761	6	1
5045 582	(	3
5053 0 6	6	1
000 174	6	3
5085 341		1
5087 233	6	1
5100 773 }		1
628 }		
5186 270	7	1
5188 890	6	1
5143 901		1
5147 652		3
5150 368	6	3
5156 8 3	5	2
5160 419	5	1
5219 875	6	2
5899 675	4	2
5126 474	7	2
160 572	6	2
5490 367	6	3
5627 859	5	3
5671 071	6	3
5672 047	6	3

W l gth	M n g	N mb t f
5 03 797	6	2
5707 204	7	1
5727 873	4	2
5731 437	4	2
5737 288	6	3
5743 645	7	1
Ob	-S S d G N	

**No 943 (Gr 5965 )**

LAT + 9

LONG 146

CLASS—I IVb IIIa

Date—1906 September 14

W l gth	M n g	N mb t f
4864 919	6	1
487 6 1	5	1
4928 511	5	1
5001 165	6	1
5009 829	4	1
5023 052	7	1
5045 82	7	1
5066 174	7	1
5136 70	6	1
5147 652	7	1
5150 363	7	1
5225 695	5	1
5400 367	4	1
5627 8 9	4	1
5671 071	4	1
5672 047	4	1
5703 797	6	1
5707 204	6	1
5737 288	5	1
5743 645	5	1
Ob	-S S	

**No 944A (Gr 5968 )**

LAT + 7

LONG 96

CLASS—IVc IVa IVb IIIa I

Date—1906 September 13 16 17

W l gth	M n g	N mb t f
4864 919	8	1
4875 671	7	1
4885 264	6	1
4928 511	6	1

W l h	M n g	N mb t f
4965 107	4	1
5001 165	7	1
5009 829	6	3
50 3 052	6	2
5025 749	4	1
5045 532	6	3
5053 056	5	1
5066 174	6	2
5087 89	6	
5134 697	6	1
5136 270	7	1
5117 652	6	3
5150 363	7	3
5156 823	5	1
219 875	6	3
522 695	5	1
5426 474	6	3
5400 72	6	2
5400 367	6	3
56 859		3
671 071	5	3
5672 047	5	3
5700 402	5	1
5703 797	5	3
707 204	6	1
5727 873	5	2
5731 437		2
5737 288	6	2
5743 64	7	1
Ob	-S S nd G N	

**No 944B (Gr 5968 )**

LAT + 7

LONG 96

CLASS—IVc IVa IVb IIIa I

Date—1906 September 15

W l th	M n g	N mb t f
496 107	4	1
5009 829	6	1
5045 58	4	1
5053 0 6	1	1
5066 174	4	1
5147 652	4	1
5150 363	4	1
5219 875	5	1
5426 474	6	1
5400 367	6	1
5627 853		1
5671 071	5	1
5672 047	5	1
5727 873	4	1
5731 437	4	1
Ob	-G N	

**No 980 (Gr 6001)**

LAT + 14

LONG 182

CLASS—I IIa IIb IIIa

Date—1906 November 4

W l ngth	M W l n g	N mb Ob t f
5023 052		1
5025 749	4	1
060 174	5	1
5138 890	5	1
5148 901		1
514 6 2	6	1
5150 863	(	1
5 19 875	6	1
5 90 867	4	1
562 859	5	1
671 071		1
5672 047	5	1
5703 797	5	1
5727 873		1
5731 437	5	1
5737 288	4	1
Ob	—G N	

W l ngth	M W d g	N mb Ob t f
225 695	7	1
5300 929	6	1
54 6 471	8	2
5430 572	6	2
5490 367		1
5490 905	6	1
6 7 859	7	2
5671 071	8	2
5672 047	8	
5707 201	7	1
5727 873	8	1
5731 437	8	1
5737 288	8	2
5743 645	8	2
Ob	—K V S d S S	

**No 987 (Gr 6015)**

LAT —24

LONG 291

CLASS—IVb IIc IIa IVe I

Date—1906 November 19 23

W l ngth	M W d b	N mb Ob t f
4861 919	8	2
4875 671	7	1
488 264	7	1
4923 511	6	1
4965 107		1
5009 829	5	1
5023 052	7	1
5043 761		1
5045 582	8	2
5066 174	8	2
5134 697	8	1
5136 270	8	2
5143 901	7	1
5147 652	8	2
51 0 863	6	2
5219 875	8	2
5225 695	6	1
5426 474	6	2
5627 859	7	2
5671 071	7	2
5672 047	7	2
5727 873	9	1
5731 437	8	1
5737 288	7	2
743 64	6	2
Ob	—K V S d S S	

**No 981 (Gr 6004)**

LAT —10

LONG 61

CLASS—IVb IVa

Date—1906 November 10 18

W l ngth	M W d n g	N mb Ob v t f
4864 919	8	2
4875 671	7	1
4885 264	7	1
4965 107	6	1
4975 580	5	1
5001 185	6	1
5009 829	4	1
5016 340		1
5023 052	6	1
5045 582	7	2
5066 174	9	1
5136 270	8	1
5138 690	7	2
5143 901	8	2
5147 652	8	2
5150 863	8	2
5219 875	7	2

**No 989A (Gr 6021)**

LAT + 11

LONG 210

CLASS—IVe IVc IIc IVb

Date—1906 November 26 30 December 3

W	l	gth	M w d	N mb b t	f
4862 029			6	1	
4862 783			6	1	
4864 919			8	3	
487 071			7	2	
488 264			6	2	
4915 1 4			7	1	
49 8 511			6	2	
001 165			7	3	
5009 829			6	3	
50 8 052			7	1	
5045 582			7	3	
5066 174			9	3	
5130 543			6	1	
5134 697			7	1	
5136 2 0			8	1	
5138 690			7	1	
5147 652			7	3	
5150 363			7	3	
5219 875			5	1	
5225 695			6	3	
5300 578			7	1	
54 6 474			7	3	
5480 572			6	2	
5490 367			6	3	
562 859			6	2	
5671 071				3	
567 047			7	3	
5708 797			6	1	
5707 204			6	1	
5 87 288			7	3	
5743 64			7	3	

Ob v -S S

**No 989B (Gr 6021)**

LAT + 11

LONG 210

CLASS IVe IVc IIc IVb

Date—1906 December 3

W	l	gth	M w d	N mb b t	f
864 919			7	1	
5001 165			6	1	
5009 829			4	1	
5045 58			7	1	
5066 174			8	1	

W	l	h	M w d	g	N mb Ob t	f n
130 543			6		1	
5147 652			7		1	
5150 363			6		1	
522 695			6			
5300 578			7		1	
5426 474			7		1	
5490 367					1	
671 071			6		1	
667 047			6			
787 288			7		1	
5743 045			7		1	
Ob			-S S			

**No 990 (Gr 6024)**

LAT + 18

LONG 197

CLASS—IVa IVb

Date—1906 November 26 27 28 December 2

W	l	gth	M w l	n g	N b	f t
4862 0 9			6		1	
4864 919			8		4	
4875 671			6		4	
4885 264			6		3	
491 411			6		1	
4928 511			6		2	
001 165			8		2	
5009 829			6		4	
0 30 2			8		1	
5043 761			7		1	
045 82			7		4	
5066 174			9		4	
5134 697			6		2	
5136 270			6			
5138 690			6		1	
5143 901			6		1	
5147 652			8		4	
5150 363			7		3	
5219 875			5		2	
5225 695			6		4	
5300 578			7		1	
54 6 474			8		4	
460 572			6		2	
5490 367			7		3	
5490 905			7		1	
5627 859			6		2	
56 1 071			7		4	
5672 047			7		4	
5708 797			6		1	
5707 204			6		1	
5737 88			8		4	
5743 45			8		4	
Ob			-S S			

**No 992 (Gr 6026)**

LAT + 22

LONG 223

CLASS—I IIIb IIa IV

Date—1906 December 3

W	l	tl	M l	g	N mb b t	f
4864 919			8		1	
4875 671			7		1	
4884 264			5		1	
4928 11					1	
4977 838			6		1	
5001 165			7		1	
5009 829					1	
502 052			7		1	
5015 582			7		1	
5066 174			8		1	
5180 543			7		1	
5196 2 0			7		1	
5147 6 2			8		1	
51 0 363			7		1	
5219 875			5		1	
5225 695			6		1	
300 78			8		1	
54 6 474			8		1	
5480 572			6		1	
5490 67			7		1	
5627 859			5		1	
5 71 071			7		1	
567 047			7		1	
5737 288			8		1	
5743 645			8		1	

Ob —S 9

**No 1008 (Gr 6042)**

LAT + 13

LONG 345

CLASS—I IIIb

Date—1906 December 22

W	l	gth	M w d	n g	N mb b t	f n
4864 919			6		1	
4875 671			5		1	
4885 264			5		1	
5001 165			5		1	
5045 582			4		1	
5066 174			7		1	
5147 652			6		1	
5225 695			6		1	
5426 474			8		1	

W	l	gtl	M w d	g	N mb b t	f
5480 887			6		1	
5627 859					1	
5671 071			7		1	
5672 047			7		1	
5703 797			7		1	
5707 204			7		1	
5737 288			8		1	
5743 645			8		1	
Ob			—S 8			

**No 1010 (Gr 6046)**

LAT — 17

LONG 3°1

CLASS—IVa IVb IVc

Dates—1906 December 14—24

W	l	g h	M w d	g	N mb b t	f
4862 029			6		2	
4862 783			6		2	
4863 838			9		1	
4864 019			8		5	
487 071			6		3	
488 64			4		2	
4928 11			5		3	
5001 16			6		5	
5009 829			6		5	
5023 052			6		3	
5043 761			6		1	
5045 582			6		6	
5066 174			7		7	
5085 341			4		2	
5087 239			6		2	
5180 543			7		3	
5131 697			6		2	
5136 270			7		5	
5138 690			7		1	
5140 553			6		1	
5143 901			7		2	
147 652			6		7	
5150 863			6		4	
5219 875			7		3	
5224 471			6		2	
5225 69			6		3	
5228 546			5		1	
5238 742			7		2	
5239 137			5		2	
5300 573			6		3	
5394 889 }			6		1	
913						



W l gth	M n w d g	N mb f b t
5426 4 4	8	6
5460 572	6	6
5490 367	6	5
5490 905	5	2
5627 859	6	6
5671 071	7	6
5672 047	7	6
5703 797	6	3
707 204	6	3
5727 873	6	4
5781 437	6	4
5737 288	8	6
5743 645	8	6
5866 675	6	1
Ob	-S S d G N	

## No 1011 (Gr 6045)

LAT + 14

LONG 321

CLASS—IVa

Date—1906 December 22

W l gth	M w l g	N mb f b t
4864 919		1
4875 671	5	1
4885 264	5	1
5001 165	7	1
5016 340	6	1
5023 052	7	1
5045 582	6	1
5066 174	8	1
5180 543	6	1
5186 270	7	1
5143 901	6	1
5147 652	7	1
5225 695	7	1
5300 578	5	1
5426 474	6	1
5490 367	5	1
5627 859	5	1
56 1 071	6	1
5672 047	6	1
5703 97	7	1
5707 204	7	1
5737 288	7	1
5743 645	7	1
Ob	-S S	

## No 1014 (Gr 6049)

LAT + 15

LONG 310

CLASS—I IIIb

Date—1906 December 22

W l gth	M w d g	N mb f b t
4864 919	7	1
4875 671		1
4885 264	5	1
5001 165	7	1
5016 340	6	1
5023 052	7	1
5045 58	6	1
5066 174	8	1
5180 543	6	1
130 270	7	1
5143 901	6	1
147 652	7	1
5225 695	7	1
5300 578	5	1
5426 474	6	1
5490 367		1
56 7 859	5	1
5671 071	6	1
672 047	6	1
5703 797	7	1
5707 204	7	1
5737 288	7	1
5743 645	7	1
Ob	-S S	

## No 1016 (Gr 6053)

LAT + 18

LONG 226

CLASS—I IIIa IIc IIa IVb

Date—1906 December 24 25

W l gth	M w d ng	N mb f b t
4905 107	5	2
5009 829	6	2
50 3 052	5	1
5025 749	4	1
5043 761	4	1
5045 582	6	
5053 0 6	6	1
5066 174	6	2
5085 341	4	2
5087 239	4	2
5147 652	5	2
5150 363	6	2

W l gth	M w d g	N mb b t f
156 823	4	1
5160 419	4	1
5163 074	4	1
5219 875	7	2
5224 471	5	1
5 38 74	6	1
5426 474	8	
5460 572	7	2
5490 367	6	
5490 305	5	1
5627 859	6	
5671 071	6	2
56 2 047	6	
5700 402	5	1
5709 797		1
5727 873	6	2
731 437	6	
5737 28	9	
5743 645	6	1
Ob	—G N	

## No 1021 (Gr 6059 )

I AT + 7

Long 108

CLASS—IVb IVa IIb IIa

Date—1906 December 29—1907 January 9

W l gth	M an w d g	N mb b t f
4864 919	7	1
4875 671	5	1
4885 264	4	1
4928 511	5	1
49t 107	5	1
5001 165	6	1
5009 829	6	10
5043 761	4	2
504 82	5	9
5053 056	5	2
5066 174	6	10
5087 239	6	1
5130 543	6	1
5134 697	5	2
5136 270	5	4
5138 690	4	2
5138 890	5	1
5140 084	5	2
5140 336	5	1
5141 497 } 886 }	5	2

W l gth.	M n w d ing	N mb b t f na.
5143 901	5	7
5147 652	6	10
150 363	6	10
156 823		1
160 119	5	1
5183 200	5	1
219 87	8	10
5224 471	5	3
2 695	7	1
238 742	6	2
5280 540	5	1
5300 578	7	1
304 355	5	1
5426 474	8	10
5460 572	7	10
490 3t 7	6	7
5490 805	5	3
56 7 859	6	10
671 071	7	10
5672 017	7	10
5700 402	6	4
5 03 797	6	
5707 204	6	2
7 7 873	6	6
73 137	6	7
37 288	7	9
5743 645	7	3
803 075		1
Ol	—S S nd G N	

## No 1034 (Gr 6075 to 6077 )

I AT — 13 ro 22

Long 320 ro 329

CLASS—V IIIa IVd IIIb

Date—1907 January 12—18

W l gth	M w d g	N b b t f
4864 919	6	4
4875 671	5	3
4928 511	4	2
5001 16	6	3
5009 829	6	6
5023 052	5	3
5043 761	5	1
5045 582	6	7
5053 056	6	1
5066 174	6	7
5087 289	6	4
5130 543	6	3

W l gth	M w d g	N mb t f
5134 697	5	2
5188 270	6	2
5143 901	6	1
5147 652	6	7
5150 313		6
5219 875	7	5
525 695	5	2
5300 578	4	1
5428 474	8	6
5480 572	6	5
5490 367	6	2
5627 859	6	5
5671 0 1	6	6
567 047	6	6
5727 878	6	1
5731 437	6	1
5737 288	7	6
5743 645	7	2
Ob	-S S d G N	

## No 1043 (Gr 6087)

LAT + 19

LONG 230

CLASS—IVa I IVb

Date—1907 January 19

W l th	M w l g	N mb t f
4864 919	6	1
928 511	4	1
5001 16	5	1
5023 052	5	1
5045 82	5	1
5066 174	7	1
5180 543	5	1
5147 652	6	1
5225 635	4	1
5300 578	5	1
5426 4 4	6	1
5460 572	5	1
5490 367	5	1
56 7 8 9	4	1
5671 071	5	1
5672 047	5	1
5737 288	6	1
5743 645	6	1
Ob	-S S	

## No 1044 (Gr 6088)

LAT — 17

LONG 230

CLASS—IVa I IVb IVc IIIa IVd

Date—1907 January 21-25

W l gth	M w d g	N b t f
4862 029	5	1
4864 919	7	3
4875 671	6	2
488 264	4	
49 8 511	4	2
5001 165		2
009 829	7	3
5013 179	5	1
5016 340	5	1
5023 052	6	
5025 749	5	1
5043 761	6	1
5015 582	6	4
5066 174	6	3
5087 23 )	5	3
5130 543	6	5
5136 70	6	2
5138 690	4	1
5148 901	4	1
5147 652	6	1
1 0 363	5	4
5 19 875	6	4
25 695	6	
5238 712	6	1
5239 137	4	1
5300 578	5	2
5426 474	8	4
5460 72	6	2
548 078	5	1
5490 367	6	2
5490 905	5	1
5547 215	4	
5627 859		4
671 071	7	4
5672 047	7	4
5 00 402	6	2
5703 797	6	2
5707 204	6	2
5727 878	6	2
5731 437	6	2
737 288	7	
5743 645	8	2
568 675	5	1
Ob	-S S d G N	

## No 1045 (Gr 6090)

LAT + 4

LONG 174

CLASS—IVa IVb

Date—1907 January 23-29

W	l	gth	M w d	g	N mb b t	f
4862 029					3	
4864 919			8		6	
4875 671			6		4	
4885 264			4		3	
4916 4 6			6		1	
4928 511			4		3	
5001 105			0		4	
009 829			6		6	
5013 479			5		1	
5016 340			5			
5023 0 2			6		4	
5025 49			5		1	
5043 47			4		1	
5043 761			5		3	
5045 582			7		6	
5052 803			5		1	
5053 056			5		2	
5061 882			4		1	
5062 285			4		1	
5066 174			8		5	
5087 289			4		2	
5130 548			6		9	
5134 697			4		1	
5136 270			6		3	
5138 690			5		1	
5143 901					3	
5147 652			6		6	
51 0 863			6		6	
5219 87			6		6	
5 25 695			6		4	
5238 71			4		1	
5 39 137			4		1	
5300 578			6		2	
5300 929			5		1	
5420 510			6		1	
5426 474			8		6	
5430 572			7		5	
5490 367			6		3	
5490 90			4		2	
5627 859			6		6	
5671 071			7		6	
5672 047			7		6	
5700 402			6		2	
5703 797			6		2	
707 204			6		2	
5727 878			6		5	
5731 437			6		5	
5737 288			8		6	
5743 645			8		4	

Ob rv —SS d G V

4

## No 1050 (Gr 6098)

LAT + 8

LONG 113

CLASS—IVa I IVb

Date—1907 January 27-31

W	l	gth	M w d	N mb b t	f
4864 919			8		3
4875 671			7		3
4915 107			6		1
5009 829			6		4
5023 05			7		3
5045 582			6		4
5066 174			7		4
087 289			5		1
136 270			7		1
147 652			7		4
150 863			6		4
5 19 875			7		2
5426 474			8		4
5430 57			0		3
5490 867			6		3
5627 859					3
5671 071			7		4
5672 047			7		4
5700 402			5		1
5 03 797			5		1
707 204			5		1
5727 878			6		2
5731 437			6		2
5737 288			8		4
5743 645			8		3

Ob —SS d G N

## No 1051 (Gr 6099)

LAT + 22

LONG 82

CLASS—IIb IIa IIIa IVb

Date—1907 January 30-February 4

W	l	gth	M wid n g	N mb b t	f
4862 029			6		3
4862 788			7		1
4864 919			9		4
4875 671			6		4
4885 264			4		4
4894 743			5		1
4898 73			6		1
4916 4 6			6		3
4920 047			5		2

W l gth	M n d	N mb b t	f
4928 11	4	4	
4948 368	5	1	
4965 107	6	2	
4977 838	4	1	
5001 165	6	4	
5009 829	6	6	
5018 479	5	2	
016 340	5	2	
50 3 052	7	5	
5043 475	6		
5043 761	6	4	
5045 582	6	7	
5053 056	6	1	
5062 66	4	2	
5062 28			
5066 174	7	6	
5085 668	5		
5087 239	5	4	
130 543	6	1	
134 697	4	2	
5136 270	6	3	
5138 690	6	3	
143 901	6	2	
5147 652	7	7	
5150 363	6	7	
5212 859	6	2	
5219 875	8	6	
5225 695	5	4	
5238 71	5	2	
5239 137	4		
5300 578	6	3	
5367 044	7	1	
5426 474	9	7	
5443 405	5	1	
5460 572	7	6	
5482 078	5	1	
5490 367	7	6	
5490 905	6	3	
56 7 859	6	7	
56 1 071	7	7	
5672 047	7	7	
5700 402	5	4	
5703 797	5	4	
5707 204	5	4	
5727 873	6	7	
5731 437	6	7	
5737 288	8	6	
5743 645	9	5	
5866 675	6	2	
5867 785	6	1	
Ob	-SS	d G N	

## No 1052 (Gr 6100)

LAT + 11

LONG 74

CLASS— I IIIa IIc IVb IVa

Date—1907 February 2 4 6

W l gth	M n w d	N b b t	f
4862 029	5	1	
4864 919	8	3	
4875 671	6	2	
5001 165	6	2	
5009 829	5	3	
50 3 052	7	3	
5013 761	6	2	
5045 582		3	
5066 174	8	3	
5136 270	6	1	
5147 652	7	3	
5150 363	5	1	
5219 875	5	3	
5225 695	5	2	
5426 474	8	3	
5460 572		3	
5190 367	6	3	
5627 859		3	
5671 071	8	3	
56 2 047	8	3	
5 27 873	6	1	
5731 437	6	1	
5737 88	8	3	
5 43 645	8	3	
Ob	-SS		

## No 1057 (Gr 6103)

LAT — 13

LONG 337

CLASS—IVb IVc IVd IVe

Date —1907 February 5-10

W l gth	M n l g	N b b t	f
4862 029	2	1	
4862 783	4	1	
4864 919	8		
487 671	6	3	
4885 261	5	3	
4916 426	6	1	
4926 394	6	1	
4928 511	4	3	
4965 107	5	3	
001 165	6	3	
5009 829	7	5	
5018 479	5	1	
5016 340	5	1	
5023 052	6	4	
5043 4 5	5	1	
5043 761	5	2	
5045 582	6	5	
5066 174	7	5	

W l th	M d g	N mb t f
5085 (68	5	1
087 23)	6	3
130 13	6	2
134 (07	6	1
186 0	(	
188 (J0		1
113 801		1
11 6 2	7	4
51 0 363	(	5
5 19 87f	7	5
225 (J5	5	3
238 7 12		
5289 137	1	1
542( 174	J	5
5460 7	7	
4 10 367	7	
4 10 105	(	
6 7 8 9		5
(71 071	7	5
6 2 017	7	5
00 402		1
03 7 17	6	4
707 06	(	4
5727 873	6	
731 137	6	f
5 37 288	8	
711 (4f	7	
Ol	-5 5	IGN

## No 1060 (Gr 6107)

LAT — 4

LONG 323

CLASS—IVa IVb

Date—1907 February 12

W l gth	M id g	N mb t f
1864 01)	8	1
487 (71	(	1
001 16	f	1
5009 82)		1
50 3 052		1
5045 82	7	1
506 174	8	1
14 ( 2	7	1
150 3 (3	6	1
213 875	5	1
522f 69		1
4 6 174	8	1
480 72	7	1
430 367	6	1
5627 8fJ	6	1
5671 071	8	1
672 047	8	1
5737 288	9	1
5748 ( 15	8	1

Ol —8 5

## No 1061 (Gr 6108)

LAT —17

LONG 306

CLASS—IIc IIa IIIa V IVd

Date—1907 February 9-18

W l th	M wd m g	Numb b t f
4862 0 9	5	1
4864 919	7	5
4875 6 1	6	2
4885 284	5	1
4916 428	5	1
4926 334	7	1
49 8 51	4	2
4948 520	6	1
49 0 801	5	1
4955 4		1
4965 107	6	6
5001 18	6	
5009 8 9	7	8
5013 479	5	1
016 340	5	1
50 3 05	7	
5043 475	5	1
5043 761	6	5
5045 582	6	8
5086 1 4	6	8
5085 688	6	3
5087 239	6	6
5130 543	4	1
134 697	5	1
5186 270	5	1
5188 690	5	1
5140 994	7	1
5147 652	6	8
5150 368	6	8
5 19 875	7	8
25 695	5	2
238 742	5	1
5239 137		1
300 578	6	1
5338 J27	7	1
426 474	8	8
5460 5	6	8
490 867	6	5
5480 905	5	1
56 7 8 9	6	8
5671 071	6	8
5672 047	6	8
5700 40	5	1
5 03 797	6	1
5707 204	6	1
57 7 873	6	7
5731 437	6	7
5737 258	7	8
743 845	7	4
5866 6 5	6	1
5879 945	6	1

Ob —8 5 dGN

## No 1073 (Gr 6117)

LAT +4

LONG 164

CLASS—IVa IVb

Date—1907 February 20 26

W	l gth	M w d g	N mb b t	f
4862 0 9		5	1	
4864 91 1		8	4	
4875 671		6	3	
488 264		1	3	
490 107		6	1	
5001 165			5	
5009 829		(	5	
50 3 052		6	4	
5013 761		6	1	
045 582		7	5	
5036 174		8		
5087 23 1		7	1	
5147 6 2		7	5	
5150 868		(		
219 871		6	5	
5225 695		4	4	
5238 712		6	1	
426 474		8	5	
460 572		7	5	
5400 907		(	4	
5400 905		7	2	
5627 859		6	5	
5671 071		7	5	
5672 047		7	5	
5727 873		7	4	
781 487			4	
7787 288		8	5	
5743 615		8	5	
Ob		—SS	d G N	

## No 1075 (Gr 6118)

LAT —13

LONG 171

CLASS—I IVb IIIb IIIa IIa IIc

Date—1907 February 23 25

W	l gth	M w d	N mb b t	f
4862 029		6	2	
4864 019		9	1	
4875 671		6	1	
4885 261		4	1	
4916 26		4	1	
4928 511		5	1	
5001 105		7	1	
5009 829		7	1	
5018 479		6	1	
501 840		7	1	
5028 052		8	1	
5043 61		6	1	

W	l gth	M w d n g	N mb b t n	f
5045 58		7	2	
5066 174		8		
5085 668			1	
5087 239		6	1	
130 543			1	
5134 697		5	1	
513 270		6	1	
5147 652		7	2	
5150 868		(	2	
5219 8 5		6	2	
5225 69		5	1	
5126 4 4		8	2	
460 572		6		
5490 367		6	2	
5400 905		5	1	
5627 859		(	2	
5671 071		7		
5672 047		7	2	
Ob		—SS	d G N	

## No 1081 (Gr 6123)

LAT +24

LONG 76

CLASS—IVa IVb IVc I

Date—1907 February 27 28

W	l gth	M w d g	N mb b t	f
4864 919		8	1	
48 5 671		6	1	
4885 264			1	
4905 107		7	1	
5001 165		6	1	
5009 8 9		6	2	
5023 05		7	1	
5045 582		6	2	
060 174			2	
5087 289		6	1	
5147 652		(	2	
5150 863		6		
5219 875		6	2	
225 60		5	1	
5300 578		6	1	
426 4 4		8	2	
5400 572			2	
490 367		6	2	
5627 859		6	2	
56 1 071		6		
5672 047		6	2	
5700 402		5	1	
5 08 797		5	1	
57 7 8 3		6	2	
5731 487		6		
5737 288		7	2	
5743 645		6	2	
Ob		—SS	nd G N	

## Catalogue of widened lines observed from July 1 1906 to February 28 190

W l gth	O	N mb f p t wh h tl l w d b d	N mb f t m d	M n f w l g	W l gth	O g	N b f p t wl l th l w d b d	N mb f t m d	M n f w d g
48620 9	O	13	19	6	5066 174	T	48	119	7
4862 783		4	6	6	571 606	T	1	1	6
4868 888	F	8	3	8	0 5341	T	5	7	5
4861 010	V	37	88	7	085 668		4	7	5
4868 451	T	1	1	5	5087 239	T	19	39	6
4870 823	T	1	1	(	106 778		1	1	5
4875 671	V	31	9	6	0 8		1	1	5
4885 204	T	20	14		117 071		1	1	4
4891 743		1	1		5118 112	M	1	1	4
4898 708		1	1	6	1 0 9	T	2	3	4
4915 414	T		2	(	5130 543	N	16	29	6
4916 426		5	7		134 697		16	22	5
4920 047		1	2	5	131 270	F	29	50	7
4926 334		2	2	(	138 690		14	19	6
4928 511	T	17	31	5	5138 890		5	5	5
4948 308		1	1	5	110 094		1	2	5
4948 520		1	1	6	110 336		1	1	5
49 0 801		1	1		110 553		1	1	6
4955 1		1	1		110 992		1	1	7
4965 107	O	18	29	5	141 386		1	2	5
4975 30	T	1	1		197	O	1	2	5
4977 833	F	2	2		5113 01		15	26	5
5001 165	T	3	63	6	147 65	T	43	124	
5009 829	T O	96	106	6	1 0 803		39	113	6
5013 179	O I	7	8	5	5166 828	C —	7	8	5
5016 340	T	11	12	(	160 119	O —	5	5	5
5028 0 2	T	30	01	6	5163 074	O —	3	3	4
5025 749	T	6	7	4	5163 00	O —	1	1	
5043 475		4	5	5	212 859		1	2	6
5043 761	T	10	31	6	5219 875	T	33	94	6
5045 582	T	42	121	6	5221 471	T	3	6	5
505 803		1	1	5	5225 095	F	28	51	6
053 056	T	11	13	5	5228 540		1	1	5
5061 882		1	1	1	5 98 742	T	9	13	6
5062 066		1	2	4	5239 187	O	6	8	4
5062 28	T	2	3	4	260 61	O	1	1	5



*C t l g f w i d e n d l n e s b e v d f m J l j 1 1906 t F b u a y 28 1907—cont*

W l gth	O g	N mb f p t wh h th l w d	N mb f t m b d	M m t w l n g	W l gth	O g	N mb f p t wh h th l w d	N mb f t m b d	M n t m f w d g
5200 840		1	1	5	5538 025	M	2	2	5
5300 578		17	23	6	5547 215	Γ V	1	1	4
5300 929	O	2	2	6	56 859	V	42	116	6
5304 355	O	1	1	5	5671 071	V	43	122	6
5338 927		1	1	7	567 047	S	48	122	6
5369 044		1	1	7	5700 402		11	22	5
5394 639 } 918 }	M	1	1	6	5703 797	V	24	42	6
					5707 204	V	1	33	6
5399 675	M	1	2	4	57 7 873		27	64	6
5420 510	M	1	1	6	5731 437		27	64	6
5426 474		88	115	7	5737 288		10	114	7
5443 40		1	1	5	5743 645		37	82	7
5460 572		33	97	6	5866 675	T	6	7	6
548 078		2	2	5	5877 785	O	1	1	6
5480 867	T	40	91	6	5879 945	A (w )	1	1	6
5490 905		15	23	5					

## NOTES

July 1906

- 3 880 D<sub>1</sub> D b b b<sub>3</sub> appeared less winged in the spot spectrum 5530 061 (Fe) 5381 221 (Fe) 5396 974 (Ti) 5316 790 (Fe) 5231 91 (—) 5121 83 (F) and 5115 566 (Ni) were effaced in spot 5109 827 (Fe) 5018 629 (Fe) and 4882 336 were thinned (G N)
- 4 884 C reversed and dark C displaced 1A to red C thinned out in the umbra of the main spot (G N)
- 11 884 C was broken and reversed brilliantly to the east of the spot D dark mostly east of the spot group and very dark where C was brilliantly reversed (G N)
- 12 Spot spectra faint 884 886 892 C slightly reversed (S S)
- 13 894 C broken (G N)
- 24 Spot spectrum faint  
899 C slightly displaced to red near the western end of the group 14 (S S)
- 25 899 C slightly reversed between the spots (K V S)
- 28 The widened line observation was made through clouds (S S)
- 30 905 C slightly reversed to the west of the spot 9<sup>h</sup> 50<sup>m</sup> 907 C strongly reversed and D<sub>3</sub> slightly dark on the umbra of the main spot 9<sup>h</sup> 52<sup>m</sup> (S S)

August

- 2 907 C slightly reversed over almost the whole group including umbrae (S S)
- 5 907 C reversed on and near the spot 8<sup>h</sup> 37 (S S)
- 18 915 C slightly reversed about the middle of the group 8<sup>h</sup> 15<sup>m</sup> (S S)
- 29 Seemg bad 926 929 C reversed over the whole of both the groups slightly in the former 9<sup>h</sup> 0<sup>m</sup> and 8<sup>h</sup> 57<sup>m</sup> (S S)
- 30 924 C broken some distance to the east of the spot (G N)
- 31 923 926 and 932 C reversed between the spots 8<sup>h</sup> 5<sup>m</sup> Dark C slightly displaced to red at several points in 923 and 926 8<sup>h</sup> 55<sup>m</sup> (S S)

September

- 1 933 C broken and reversed close to spot (G N)
- 2 931 C slightly displaced to violet to west of spot 8<sup>h</sup> 3<sup>m</sup> (S S)
- 4 932 F displaced 2A to violet to north west of group 9<sup>h</sup> 35<sup>m</sup> (S S)
- 8 936 C slightly reversed Dark C slightly displaced to red at several points 8<sup>h</sup> 10<sup>m</sup> 940 C strongly reversed close to the central spot and to the west of it D<sub>3</sub> slightly dark 8<sup>h</sup> 14<sup>m</sup> (S S)
- 9 934 C broken and reversed (G N)
- 10 934 C slightly reversed between the spots 9<sup>h</sup> 5<sup>m</sup> (S S)
- 12 943 C reversed on and near the companion spots D dark over the whole group 8<sup>h</sup> 7<sup>m</sup> (S S)
- 14 936 C reversed and bent towards red to the east of the spot slightly displaced to violet to the west of it 8<sup>h</sup> 3<sup>m</sup>  
946 C strongly reversed between the spots 8<sup>h</sup> 4<sup>m</sup>  
943 C reversed at several places near the spots 8<sup>h</sup> 6<sup>m</sup>  
944 C reversed at several places Dark C displaced slightly to violet near the eastern end of the group 8<sup>h</sup> 8<sup>m</sup> (S S)
- 17 944 C reversed between the spots and on the umbra of the largest spot at the eastern end of the group 8<sup>h</sup> 7<sup>m</sup> (S S)
- 20 944 C slightly displaced to red near the western end (S S)
- 27 952 C slightly reversed 8<sup>h</sup> 20<sup>m</sup> (S S)
- 29 952 C reversed and D slightly dark near spots 8<sup>h</sup> 1<sup>m</sup> 958 C reversed near a spot (8<sup>h</sup> 8<sup>m</sup>) and broken about the centre of the group at 9<sup>h</sup> 2<sup>m</sup> (S S)

October

- 4 958 C broken and faintly reversed (G N)
- 5 958 C reversed over almost the whole group 8<sup>h</sup> 10<sup>m</sup> (S S)

1906

- October 12 965 C slightly reversed between spot and limb 8<sup>h</sup> 0<sup>m</sup> (S S)  
 31 978 C reversed between the spots 8<sup>h</sup> 15<sup>m</sup> 980 C broken near eastern spot 9<sup>h</sup> 7<sup>m</sup> (S S)
- November 10 981 C reversed Dark C slightly displaced to red near the eastern end of the group 9 20<sup>m</sup> (S S)  
 19 987 C slightly reversed and dark C displaced 1A to red at the north west end of the spot (K V S)  
 26 990 C slightly displaced to red to the west of the spot 9<sup>h</sup> 20<sup>m</sup> (S S)  
 28 992 C slightly reversed and D slightly dark 8<sup>h</sup> 15<sup>m</sup> (S S)  
 30 Passing clouds
- December 3 992 C reversed Dark C slightly displaced to red to the west of the group 8<sup>h</sup> 5<sup>m</sup> (S S)  
 4 992 C broken at several places and lightly bent to violet at one place (G N)  
 13 1008 C knotted all along the group  
 1010 C brilliantly reversed west of the spot and broken between the umbrae inside the spot (G N)  
 14 1008 1012 C knotted and faintly reversed  
 1010 C faintly reversed between the umbrae (G N)  
 15 1010 C very brilliantly reversed on the two umbrae D also brilliant D<sub>1</sub> D<sub>2</sub> b b b b<sub>4</sub> also reversed at the same place (b stonger than b b or b<sub>4</sub>) 8<sup>h</sup> 45<sup>m</sup>—9<sup>h</sup> 10<sup>m</sup> D dark and sharp to the east of the spot quite outside it 9<sup>h</sup> 1<sup>m</sup> Cloudy with only a few short breaks On December 12 when the spot came into view it was surrounded by an unusually small and faint group of faculae but was associated with a bright prominence streak (S S)  
 16 1010 C reversed on the westernmost umbra in the main spot 8<sup>h</sup> 40<sup>m</sup> (S S)  
 18 1010 C reversed on the westernmost umbra at 8<sup>h</sup> 23<sup>m</sup> on all the umbrae at 9<sup>h</sup> 13 (S S)  
 19 1010 C brilliantly reversed at a point inside the main umbra (8<sup>h</sup> 50<sup>m</sup>) broken along the group to the east of the main spot (S S)  
 20 1008 C slightly reversed 8<sup>h</sup> 30 1010 C reversed over the large umbra 8<sup>h</sup> 35<sup>m</sup> Faint sun B d seeing (S S)  
 22 1008 C slightly reversed 9<sup>h</sup> 2<sup>m</sup> 1014 C reversed and broken and D dark in the western half of the group 9<sup>h</sup> 31 1010 C reversed at the eastern end of the group 9<sup>h</sup> 30<sup>m</sup> 1016 C slightly reversed and dark C slightly displaced to red between the two spots 9<sup>h</sup> 28 (S S)  
 23 1014 C slightly displaced to red to the east of the westernmost spot 8<sup>h</sup> 25<sup>m</sup> 1016 C reversed strongly over the whole group—strongest over the main umbra 8<sup>h</sup> 23<sup>m</sup> (S S)

1907

January

3 1021 The following lines were reversed —

L	th	d	L	mp l t l y	B	ght l
w	l	d	f	d	t	l
5018 6 9 (Fe)			5100 108 (N)		5092 5	
22 414 (Fe)			21 829 (F)		5144	
84 279 (N)			5 244 (G o)		56	
5109 827 (Fe)			59 231 (Fe)		6	
4			62 449		63 5	
55 303 (N)			5316 90 (Fe)		5275 641	
5234 791			5480 964 (Fe)		5339	
5936 974 (T)			87 354 (Fe)		12 890 (Co)	
81 221			527 033		43 6 2 (Fe)	
5535 061					5439	
67 621					90 5	
5638 4 8					97 0	
79 249					5558 09	
D					60 494	
D						

(G N)

1907

January

- 10 1034 C reversed to the east and the west of the spot 10<sup>h</sup> 35<sup>m</sup> (S S)  
 14 1034 C slightly reversed at several places 8<sup>h</sup> 40<sup>m</sup> (S S)  
 16 1034 C reversed and D dark over a large area to the north west of the group quite clear of the spots 8<sup>h</sup> 20<sup>m</sup> (S S)  
 18 and 19 1034 C reversed at several places Dark C slightly displaced to red about the middle of the group 8<sup>h</sup> 53<sup>m</sup> C reversed on the group 1044 on the 19th 8<sup>h</sup> 50<sup>m</sup> (S S)  
 21 1045 1046 C slightly reversed near both groups 8<sup>h</sup> 40<sup>m</sup> (S S)  
 25 1045 C broken to east of spot 8<sup>h</sup> 30<sup>m</sup> 1047 C reversed 8<sup>h</sup> 32<sup>m</sup> (S S)  
 27 1044 C slightly reversed 8<sup>h</sup> 45<sup>m</sup> 1055 C slightly displaced to violet to west of spot 8<sup>h</sup> 46<sup>m</sup> 1051 C slightly displaced to violet to west of spot far away from it 8<sup>h</sup> 47<sup>m</sup> (S S)  
 29 1051 Bright continuous spectrum to the east and the west of the leader 10<sup>h</sup> 10<sup>m</sup> 1052 1054 C reversed on nearly the whole of the two groups Dark C broken about the centre of the groups 8<sup>h</sup> 30 (S S)  
 31 1051 C reversed over the whole group including the main umbra (S S)

February

- 1 1051 D very dark and knotted west of the main spot and over a small dot C was not brilliantly reversed there C reversed at the easternmost part of the umbra D<sub>2</sub> dark east of the spot along the group C was knotted and broken north of the main spot (G N)  
 4 1051 C reversed over the eastern half of the main umbra and over a rather wide area to the west of the spot 8<sup>h</sup> 30  
 1052 C slightly displaced to red from the middle of the group to the eastern end of it amount gradually decreasing from the former to the latter position C also reversed near the eastern end 8<sup>h</sup> 31  
 1054 C slightly displaced to red in the middle of the group 8<sup>h</sup> 35 1057 C slightly reversed 8<sup>h</sup> 36 (S S)  
 5 1051 C knotted and faintly reversed 1057 C knotted and D<sub>2</sub> dark east of the main spot (G N)  
 6 1051 C reversed at the eastern end of the umbra in the main spot 8<sup>h</sup> 30<sup>m</sup> 1057 Bright continuous spectrum at the centre of the umbra in the main spot C reversed at that position 8<sup>h</sup> 20<sup>m</sup> (S S)  
 7 1051 C faintly reversed on the eastern part of the umbra and to some distance east of it D<sub>2</sub> sharp and very dark only to the east of the spot 1057 C broken and knotted all along the group to the east of the main spot D<sub>2</sub> also dark in the same place Dark C slightly displaced to red close to the main spot  
 1058 C knotted and broken along the group D<sub>2</sub> dark in places east of the middle of the group 1061 C very much broken and brilliantly reversed in one place between the chief spots (G N)  
 8 1057 I displaced 13A to red to the west of the spot and close to it Further west it was displaced bodily by the same amount over a large area the effect was as though 48628 was greatly strengthened at that position 8<sup>h</sup> 35<sup>m</sup> I displaced to violet by the same amount at 8<sup>h</sup> 42<sup>m</sup> amount 2A at 8<sup>h</sup> 47 H and Mg lines much narrowed over umbrae C slightly reversed to west of spot Displacement to violet was 3A at 10<sup>h</sup> 25<sup>m</sup> it looked like a detached cloud at 10<sup>h</sup> 30 (S S)  
 10 1058 C reversed to the east of the group 9<sup>h</sup> 0<sup>m</sup> 1061 C reversed on the western half of the easternmost spot but one in the train 10<sup>h</sup> 15<sup>m</sup> (S S)  
 11 1061 C knotted and broken along the group D dark between the main spots (G N)  
 12 1061 C reversed between the spots over almost the whole group Dark C slightly displaced to red to the east of the group 8<sup>h</sup> 30<sup>m</sup> 1068 C reversed to the west of the spot 8<sup>h</sup> 29<sup>m</sup> 1066 C reversed over the whole group Dark F displaced 0.5A to red to the east of the group 8<sup>h</sup> 33<sup>m</sup> 1058 C reversed and bent to the west of the main spot 8<sup>h</sup> 35<sup>m</sup> (S S)  
 13 1061 C slightly reversed in places D dark (G N)  
 14 1070 C reversed over a large area D sharp and dark to the east of the spot 8<sup>h</sup> 30<sup>m</sup> 1061 C reversed over almost the whole group and D dark in places C slightly displaced to red about the centre of the group 8<sup>h</sup> 34<sup>m</sup> 1066 C reversed Dark C slightly displaced to red to the east of the main spot 8<sup>h</sup> 37<sup>m</sup> (S S)

1907

- February—18 1061 C reversed and D dark and sharp between the spots 1069 C slightly displaced to red  
*cont* at several places 1073 C slightly reversed to the east of the spot 8<sup>h</sup> 35 (S S)
- 20 1069 C slightly reversed and D dark between the spots 9<sup>h</sup> 45 1073 C slightly reversed  
 to the east of the spot 8<sup>h</sup> 30<sup>m</sup> (S S)
- 21 1078 C reversed and broken and D dark to the east of the spot 8<sup>h</sup> 35<sup>m</sup> 1077 C reversed  
 8<sup>h</sup> 35<sup>m</sup> (S S)
- 23 1078 C strongly reversed near spots 8<sup>h</sup> 34<sup>m</sup> 1075 C reversed over almost the whole  
 group F was displaced slightly to red at several places and about 1A to violet near the  
 centre of the group 8<sup>h</sup> 35<sup>m</sup> 1076 1080 C reversed (S S)
- 24 1079 C strongly reversed on western spot and between the spots D bright on western  
 spot and dark between the spots Continuous spectra at several points between the spots  
 Bright F displaced about 1.5A to red to the east of the western spot also both ways by  
 1A to the west of the eastern spot 9<sup>h</sup> 0<sup>m</sup> 1075 C slightly reversed and D slightly dark  
 on nearly the whole group 9<sup>h</sup> 6<sup>m</sup> 1081 C reversed and D dark between spot and limb  
 F displaced about 1.5A to violet from the spot to the limb 9<sup>h</sup> 10<sup>m</sup> Displacement dis  
 appeared at 9<sup>h</sup> 13<sup>m</sup> (S S)
- 26 1076 C reversed and D dark between the spots 8<sup>h</sup> 24<sup>m</sup> 1075 C slightly reversed at several  
 places 8<sup>h</sup> 20<sup>m</sup> (S S)
- 28 1084 C slightly reversed 8<sup>h</sup> 35<sup>m</sup> (S S)

SOLAR PHYSICS OBSERVATORY }  
 KODAIKANAL 2nd July 1907 }

J EVERSHED

*Ag Director KodaiKANal and Madras Observatories*

# Kodaikanal Observatory.

## BULLETIN No XII

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### LIST OF PROMINENCES OBSERVED BETWEEN 1907 JANUARY 1 AND 1907 JUNE 30

This list is a continuation of that published in Bulletin No X and contains all the prominences that were recorded visually as well as those photographed with the spectroheliograph. The visual observations were made with the 3 prism reversed spectroscope attached to the 6 inch Cooke refractor using the C line. The photographs were taken in the line H of calcium. The image forming lens of the spectroheliograph is a Cooke Photo visual objective of 12 inches aperture and 20 feet focus the image is therefore about 2.8 inches (58 millimetres) in diameter. When prominences are photographed in calcium which are not recorded visually Ca is entered in the remarks column but it must not be inferred that these prominences were composed of calcium vapour only without hydrogen only a few cases have been recorded of a calcium prominence without hydrogen and still fewer of a hydrogen prominence without calcium and in all these instances the evidence is inconclusive either from a difference of time between the visual and photographic observations or from the effect of poor seeing.

Owing to the great intensity of the calcium lines it usually happens that more prominences are recorded on the photographs in a hazy sky than can be seen in the C line.

The general distribution of the prominences during the period covered by these observations will be given in a separate bulletin.

In the lists which follow the Indian Standard Time ( $\frac{5}{8}$  hours fast on Greenwich Mean Time) at which each prominence was observed is entered in the second column. The true latitude corrected for inclination of the sun's axis in the direction of the line of sight is entered in the fourth and fifth columns and the heights measured from the chromosphere in the seventh column. The observer's initials are given in the first column. They were S Sitarama Aiyar (S S) G Nagaraja Aiyar (G N) and S Muthuswamy Aiyar (S M).

D t d b	H I S	B	L t t d		L m b	H l t	R m k
			N t h	S t h			
1907							
J n u y 1 G N	9 20	15	54		E	30	
	18	1	40		D	30	
	15	3	36		E	60 & 75	D b l
	15	05	31		L	30	
	15	1	28 5		L	80	S l t t h w d
	14	1	24 5		D	30	
	10	1	20 5		L	20	
	8	1		20 5	I	20	T p f w f l t - 18 D
	7	8		20 5	L	60	
	4			49	D	30	M t t h t p m
	4			5	L	40	
				13	L	30	
	10 6	2		77	W	60	
	5	2		74	W	8	I t t d t l m b b y t w t m w l g p
	4			64	W	30	b t
	2			42	W	120	
	9 59	3		28	W	30	
	57	1		12	W	30	
	56	05			W	2	
	5	15	15		W	46	
	53	05	40		W	20	
	5	2	43 5		W	30	
	2	1	47		W	40	
	50	9	55 5		W	50	
	2	05	6		W	10	D t h l
J a n u y 2 G N	9 27	1	70		F	20	
	28	05	58		D	20	S l t w t w d
	20	2	42		D	80	} M t
	20	45	37		L	80	
		1	3		E	75	
	49	15	9		E		
	48	1		2	L	1	
	48	1		28	D	60	} M t l t h t t p
	18	25		31	D	60	
	41	05		17 5	D	30	
	40	05		51	I	15	
	37	1		52	D	20	
	37	2		80	W	40	} l l m t l t d t h t h
	35	25		77	W	80	
	34	2		17	W	30	
	32	05	4	30	W	40	
	31	4	30		W	15	
	30	75	4		W	20	
J a n u y 3 G N	8 57	2	42		E	40	
	57	2	38		D	40	
	5	5	17 5		L	20	
	55	1	11 5		D	30	
	52	1		16 5	E	45	25 w y f m l m b
	50	4		40 5	D	40	
	48	1		47 5	I	20	
	49	1		64	E	20	
	9 8			74	W	60	
	8			70 5	W	15	
	7	1		17	W	5	
	5	8	19 5		W	25	
	0	5	5 5		W	100	v y b g h t
J u y 4 G N	9 11		49		E	30	
	10	5	22 5		I	4	
	8	6	0		I	30	
	7	05	18		F	15	
	6	1		4	E	15	
	5	1		8	E	40	
	3	1		22 5	E	15	
		05		42	D	15	
		1		49	L	30	
	1	3		54	E	45	

D t d b	H IST	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1907							
J n u y 4 C N	9 0	1		58 5	I	30	
— t d	0	1		61	D	40	
	8 50	0		67 5	L	10	20 w y f m l m b
	9 3	4		77	W	7	S p t d f m l m b by 25 1 t l t - 75 d
							- 79 W
	34	0 5		78 5	W	15	
	34	0		72	W	15	
	33	3		61	W	60	I t
	30	0 5		38	W	15	
	30	3		31 5	W	30	
	30	2		32	W	20	10 w y f m l b
	8		14		W	20	
	8	2	17		W	20	
	27	1	22		W	30	
	6	5	28		W	20	
		4	3		W	50	
	20	9	58 5		W	90	
J n u y 7 G N	8 50		19		F	60	
	47	2	20		E	20	
	16	1	6 5		I	1	
	1	2		12	E	12	} P t f t h d p l d t d l t 20 A t P a 108 d 105 5 R l l y h g g
	40	1 5		14	I	20	
	10			16 5	I	10	
	37			23	I	10	
	36			57	E	20	
	35	1		61 5	I	10	
	9 3	0 5		86		20	
		2 5		82	W	60	
	0	1		7	W	10	
				72	W	15	
	0	0 5		71	W	10	
	8 50	3		62	W	55	
	18			37 5	W	75	
	57	2		27	W	0	
		5	6 5		W	20	
	3		48 5		W	10	
	58	0	45		W	20	
J y 8 S S	9 8	5	40		F	80	N w t t p S l t t h w l
	4		20		F	25	D t l l f m l m b
	3	3	17 5		F	20	
	1	2 5	)		E	37	N w t t l S l t t w l
	8 38	1		12	E	25	} S N t
	33	1 5		14	F	120	
	33	1		17	I	25	
	30			3	I	40	
	)			10 5	E	35	
	6			1	L	10	
	26	2		56	D	2	
	25	1 5		61	I	20	
	9 J			72	W	60 ±	A g l f t t d i y m l l t l d
							f m l m b
	27			67	W	90 ±	A t g t k d t l d f m l l
	2	1		7	W	10	
	20	2	3		W	40	C l p h l g t l y l t d f l t
							+ 6 W
	18	1	12		W	10	
	18		18 5		W	40	I t
	13	1	82 5		W	25	D
J y 9 G N	9 3	1	40		I	60	B g h t
	1		1		E	30	} F t
	8 57	1	17		F	50	
	56	3	11 5		D	140	M l l f b g h t h t j k p l l y h g g
	58	1		2	L	15	
	53			5	E	20	B g l t
	3	2		11	L	60	A h l d t l g t l t l m
							t l t - 2 D
	52	3		19	E	80	A h d t t h t h
	4	1		54	E	60	



[illegible]

D t l b	H IST	R	L t t l		l b	H g l t	R k
			N t h	S t l			
1907							
J n y 15 — ontd	GN						
	16				E	20	A b l t j
	16	1		1	I	1	
	4			9	E	20	
	8 4	3		15	I	30	I t l y b g h t l h t f t l p m e
							w l g l t l y d p l d t d
	1	1		1	L	2	
	0			43	E	4	
	49			48	I	20	
	48	3		55	I	20	I t l y l g h t j t
	17			67	I	1	D t h d f l m b
	11	5		72 5	I	30	
	9 5	0 5		81	W	60 1/2 30	
	57	1			W	20	
	58	3		3	W	20	
	58	3		3	W	30	
	51	2 5	2 3		W	30	
	1	1	37 5		W	30	
	3	0	13 5		W	1	
I n y 10	SS						
	8 49		8		I	10	
	47	4	48		I	35	
	16	1	30		I	5	V y b g l t t l l h f t t
							i l t + 24 F
	38		6 5		F	10	
	37			3 5	I	10	
	31			7	F	10	
	34	0 5		11	F	2	
	33			40 5	I	30	
	33			17 5	F	30	
	31	0		60	F	3	
	31			67	F	3	D t l l l l l
	30			78	I	3	
	2			81	F	2	
	10	1 5		5	W	30	B g l t
		3		11	W	60	N D l t
	5	2		8	W	60	
	8 1	2		1	W	30	M t l l p l y l g
	3		11		W		
	0	0	8 5		W	20	
					W	1	
J y 17	GN						
	2		8		F	20	
	1		49		F	20	
	0	3	29 5		I	4	B g l t t
	8 58	2 5	24		I	10	
	57		5		I	10	
	56	3		1	I	30	
	55	1		45	F	1	
	54	2 5		51	E	40 1/2 80	
	52			72	F	1	
	2	0		73 5	L	15	
	52			75	I	120 ±	
	12	1		82	W	20	
	10	3 5		38	W	5	
	J			27	W	20	
		5	5 5		W	30	
	6		19		W	20	
		3	48		W	60	
J n u y 18	SS						
	8 51	2	51		I	100	J t d t t l S l t t l w d
	47		19		F	10	
	45	3	7		E	20	
	45				E	25	A b g l t l d l t t d t t l m b b y
							l d t k
	42			C	F	10	
	39	0 5		42	I	25	
	38	3		48 5	F	40	S l t t l w d l g h t l y
	36	2			L		
	35	0 5		71	E	15	

D t l b	H IS1	B	L t f d		L m b	I I l t	R m k
			N t l	S t h			
1907							
Jan y 18 SS	8 34	1		95	F	50	F t
- ontā	33	05		83	D	1	
	9 1			65	W	5	
	8	2		38	W	10	I t
	7	1		285	W	1	
		2			W	10	
	8 9	2	42		W	60	B ht D D b l l d b b glt
							t b
J y 19 SS	J 17	2	67		I	75	Sl t lgltly thw l
	14		33		F	10	
	10	6	15		E	0	M t II
	8	0	2		D	5	Sl t tw d
		05		3	E	0	
	6	1		7	I	20	
	4	4		40	L	50	N ttp
	1	1		49	I	50	D
	8 9			68	E		N l m tl i t l t C w l ltly
							l l l lb th w y
	7	1		715	D	0	F t
	9 44			5	W	15	
	48			(8	W	70±	Sl l t l
	42			66	W		A h t w t l wyf l b
	38	8		13	W	90	S N t
	30			8	W		A m ll l wyf l b
	30		3		W	3	A l t t k wyf mlmb
	28	05	7		W	10	
	28		11		W	20	
	6	4	18		W		Alwb l
	4		42		W	55	
	2	1	495		W	25	
	21	1	58		W	10	
J y 20 GN	10 1	1	36		I	15	
	0	1	18		I	15	
	9 20	3	55		I	1 3 70	B t lyb ght
							Sh p l l b b th t t
	20		Eq t		L	15	
	18	1		11	P	20	
	18	1		13	E	20	
	17	05		27	I	40	
	16	2		38	E	30	
	14	05		1	I	20	
	14	1		51	E	4	I t
	14	1		56	I	45	
	12			78	I	15	10 wyf malr]
	1	10		755	E	30	
	10	1		72	W	90	
	6	2		60	W	90	
	10 30	3		13	W	10	
	28	05	5		W	1	
	8	05	7		W	15	
	27	10	17		W	20	
	7	1	45		W	20	
	5	5	485		W	30	
J y 21 SS	9 8	11			E	60 ±	I t
	8	1	85		E	40 ±	D
	8		6		I	40 ±	D
	8		3		L	30 ±	D
	G	2		9	F	15	
	4			19	F	20	
	1	1		24	E	20	
	8 54	35		74	L	50 ±	
	9 44			84	W	25	Sl t tw d
	38	6		28	W	45	} M t l th ttp
	32	2		22	W	45	M t II O lgltl d l l d b th w y ttI
				12	W		t
	30		7		W	25	Af t l t t k dt hdf l b
	26	2	9		W	0	M t II T p t lmb g tlt + 14 W

[illegible]

D t d b	H I S I	B	L t t d		L b	H l t	R k
			N t h	S t l			
1907							
J y 2 SS	8 1t 46 4 42 38 35	0 1 2 1 0		18 28 2 32 2 81 28	I L L E E W W	20 20 0 60 15 15	D t l d i m l m b P l t D A l h t l l t t h h m l l N Mg I b g h t t b S l n t t l w d
	9 19 16 14 10	5 6 1	25 51 81	r 5	W W W W	60 25 20	
J y 26 G N	9 20 15 15 15 10 8 3 0 30 30 28 28	1 2 1 11 15	20 17	0 5 7 1 22 33 41 77	L E E F L E E E W W W W	75 t ) 15 40 0 45 60 1 10 3 60 25	S l t t w d I l j t S l t t w d
J y 27 SS	9 21 20 17 17 15 10 5 41 40 36 33 31 28 27 27	0 5 2 0 5 3 4 1 ( 0 5 2 0	39 8 2 17 5 12	0 5 14 34 84 61 3	F E L L I E I I W W W W W W W W	1 10 1 2 60 I w 70 4 1 30 10 2 40 20 20 20 0	V y b g l t t l l D d S l g l t l y b d t t l T p t d t t l l t l N w t t p A n g l l l p d w t l w i f b t t
J y 8 G N	8 57 55 55 51 53 52 50 50 50 9 10 8 6 5 3 3 0	1 1 0 1 0 1 2 2 1 3 1 4 5	10	10 1 26 47 53 84 84 83 39 24 18 14 10 5 8	F E E I L E E W W W W W W W W W	30 00 ± 40 ± 10 40 20 10 30 30 60 4 10 20 30 30 20 0 ±	B g l t O l h t l y l l l d t d t 0 l 45 m I t
J y 29 SS	8 58 58 58 58 51 52 51	1 0 5 0 5 0 5 0 5	31 28 20 24	21 31 35	L L E L I E F	4 45 45 20 ± 25 10 30	l g l t l y b d t t l D D B g h t

D t d b	H I S T	B	L t t l		L m b	I l t	r k
			N t h	S t h			
1907	M						
J y 29 S S	8 49			51	I	95	
	47	1		60	E	2	I t
	46			76	E		
	45			77	D	25 ±	V y f t
	43	05		83	F	10	
	40	2		7	W		
	31			3	W	20	I w l
	32	2		17	W	70 ±	I t
	28			4	W	25	S l l
	28	1		40	W	1	
	26	2		20	W	25	B g l t
	24	2		9	W	5	
	18	35	20 5		W		
	18	2	30		W	30	T l b l d w d m t t l l t p m
	12	2	52		W	55	
J y 30 G N	9 42		37		D	10	
	41	1	32		D	15	
	40	3	23		I	10	
	38	2	10		I	40	
	36	1	8		I	20	
	35		05		L	0 v 30	
	30			9	I	10	
	30	3		32	I	0	
	5	1		43	I	15	F t
	22	1		17 5	I	I w	
	20	0		50	F	100	
	15			60	L	1	D t h d
	15	2		63	E	15	A l d l t w y f l l
	12	1		8	W	10 & 90	120 l g h t 10 l 10
	10	3		71 5	W	10	100 l
	10	1		72	W	80	S l t w t w d d m t l m l } I l t l t
							t L t - 41 L t 10 l 10
	10 5	1		8	W	45	
	3			05	W	00	
	3			18	W	0	
	9	13	2		W	15 & 80	
	0	5	18 5		W	10	
	50	1	5 5		W	40	
J y 31 S S	0 29		13		F	10	
	1	1	25		I	80	
	15	05	23		F	0	
	13	15	10		I	0	
	12	05	13		I	15	
	11	2	3		I	15	
	9			2	I	10	
	5	3		29	I	0	A f t t m l l l w d f m t
	0	1		33	I	30	F t B b l
	8 59			45	I	10	
	57			51	L	70	B l t t l
	55			58	E	10 ±	D t l l
	2			69	F	85	S l t t l d
	50			83	W	10	
	1	25		79	W	1	
	17	05		77	W	20	
	15			74	W	0	
							B l t l m l d l w t l d t l l l t t
							t l
	14	05		71	W	20	
	9	05		61	W	20	
	55	25		30	W	00	
	53	05		18	W	25	
	51	25		9	W	15	
	45	14	21		W	4	
	11	4	19		W	6	
	35	6	71		W		
	31		76 5		W	10	
I b y 1 G N	9 57	1	56		E	15	
	50	05	2		E	20	
	50	2	21		D	30	

D t l b	H I S F	B	L t t l		L m b	H g h t	R m k
			N t l	S t l			
1807							
F b y l G N	9 45	14		1	E	30 t 80	
— t d	27	05		52	F	30	
	26	1		81	E	20	
	2	8		84	E	120	A d t h d l d t t p 180 h g h
	15	2		71	W	90	
		1		6	W	70	
	10 12	1		49	W	30	
	11			38	W	35	
	10	15		31	W	0	
	9	2		20	W	5	
	7	25		12	W	4	
	6				W	15	
	5	13	1		W	2 t 45	
	0	7	17		W	0	A t k t h d l 55
	9 4	4	50		W	30	
	5	2	82		E	10	
							O l h t g l l 10 83m
F b y S S	9 46		065		L	20	
	44	05	45		D	20	
	43	1	395		I	25	
	36	8	13		L	20	M t l l
	33		5		I	10	
	28				D	5 ±	B g h t l n t t l w l
	28	2		14	E	25 ±	D O d D l g l t l y d p l d t l t t b
	28			16	D	20 ±	D d l
	8	15		21	D	10	B g l t
	23	05	635		F	10	
	1	1	84		W	2	S l t t w d
	20	1	8		W	25	S l t D
	18	1	75		W	80	S l t w t w d
	18	1	25		W	10	D b l
	10 0		67		W	15	
	18		18		W	15	
	15	05	21		W	60	B d t t l O l m d f t n f m
	13		17		W		
	4	1	5		W	20	
	4		165		W	30	S N t
	0	2	30		W	10	
	9 8	05	39		W	2	S l t t h d
	56	2	13		W	70	n
	53	4	50		W	75	D
	50	1	55		W	10	} F p t d O
	50		56		W	15	
							O l l t p l 81 52
F b y 3 G N	10 5	45	44		D	30	
	2		31		L	15	
	0	6	10		F	2	
	0	5	11		I	20	
	0	9	6		F	30	
	9 50	2	1		I	30	
	40	2		10	E	60	A l t w d t l l t p m
	40	1		14	D	1	} R d l y h g T w l t l k l w l g h t
	40	1	16		F	40	l p l m t t d
	40	2	0		E	40	
	35		20		E	30	
	35	1	32		L	100 ±	D t h d f t
	10 17	3	17		W	00	
	15	05			W	20	
	12	3	13		W	90	
	10	1	41		W	2	
	8	7	2		W	40	A h t l t l m b t l t + 48 d
							+ 55 W
F l y 4 S S	9 26	15	14		E	10	
	25		22		E	40	D t l d
	23		15		F	2	
	21		13		D	50 ±	T p f t
	20	3	5		E	10	

D t l b	H IST	B	L t t d		L mb	H g l t	R m k
			N t l	S t l			
1907							
F b y 4 SS — id	9 0	05	8		F	1	} S N t
	0 0	1		1	E	20	
	0 4	4		16	E	15	
	8 3			3	E	15	
	3 3	05		34	L	20	
	48 3	5		5	D	65	35 l h t 9l 0m
	15 05			2	I	15	
	42			80	W	10	
	41			7	W	25	
	11 1	1		71	W	20	
	9 48	3		52	W	35	D bl
	1 1	4		45	W	5	
	1 4			2	W	30	
	42 2	2		18	W	70	
	39 0	0	Γ q t		W	25	
	37 6		6		W	60 ±	F t d t l d O l m 10 B gh O l t l h 10 7
	34 12	2	12		W	20	
	32 1	1	8)		W	1	
F l y 5 C N	9 28		50		D	25	Mg t gly d l m l t b t l t -19 L
	27 4		31		L	20	
	25 0		6		I	15	
	20 1			17	L	30	
				5	D	10	
	18 15			76	W	15	W t l l O p l l g p l 8l 58
	35 2		Eq t		W	10	
	32 15		9		W	2	
	30 2		24		W	20	
I b y 6 SS	9 18	6	1		I	40	30 h g h O B g l t t 30 l l l O
	8 2		34		D	35	
	7 05		18		D	15	
	6 05		15		I	10	
	4 7		25		I	20	
	8 46	1		5	I	2	A l d t k b d l l M t l l f m l ly N d Mg
				115		30	
	1 05			19	I	30	
	13 4			31	I	20	
	10 4			5	L	10	
	39 1			6	D	1	D t h l l t t l w d l t
	37 1			69	L	0	
	36 80			84	D	10	
	36 81			81	W	10	
	34 1			76	W	2	
	9 31	05		50 5	W	10	S l t tw l D
	27 15			11 5	W	25	
	26 7 5			7 5	W	10	
	25 2		Eq t		W	15	
	2 4		10		W	1	
	2 20		26		W	10	S l t thw l S l t w tw d 20 l g l O O p h t g l h 8l 5J l J 15
	22 1		29		W	2	
	20 4		4		W	1	
	17 0		02		W	3	
I b y 7 G N	9 56	6	53		I	35	O 20 w f m l m b
	4 35		35		E	15	
	5 1		28		E	15	
	50 14			26	E	15	
	47 25			55	E	40	
	1 1			71	L	60	
	15 1			74	I	10	
	40 3			8	W	0	
	35 1			77	W	50	
	33 0			74	W	4	
	31 35			69	W	60	



D t d b	H IST	B	L t t d		L mb	H ght	R m l
			N th	S th			
1907							
F b y 7 GN	10 15 15 7 3 2 1	2 1 95 1 5 1 1		57 54 35 15 9 45 54	W W W W W W W	30 70 95 5 10 15 20 10	20 w f m l m b A O l d l t 45 h g h t b t C C p h t l h 9 19 25
F b y 8 SS	9 32 30 28 23 18 15 12 10 7 3 8 56 10 0 0	05 6 1 6 2 15 05 05 05 2 2	59 49 40 35 27 55 81 88 80 72 67 3 32		L L E D F D F W W W W W W	20 35 15 10 25 15 10 50 65 60 30 35 10	N Mg F b g l t t b S l t t h w d T l l B g h t b l t l l d l F t C p l 145 t l c 10 t 9 l 3 } M t t l l A O l g l O S l t t l l S N t O p l p l 9 l 3
F b y 9 GN	10 8 7 ( 6 1 3 2 0 2 20 1 1 14	1 2 2 05 1 1 3 1 15 2 1 1 15	71 54 52 48 26 105 2 91 53 34 12 15 28 64		F F F D D F F L W W W W W W W	15 10 2 5 15 1 30 25 15 25 10 1 25 20	C p h t p h 8 l F t B l t t l l } C t d t l l D D A y f t l l l I l l t l t h l D b l C C d C } C t l t t p O C A f t l d F t D
F b 0 SS	9 4 4 88 35 35 3 30 3 20 8 30 30 9 1 8 30 10 14 12 11 11 9 6 3 2 0 0	2 1 6 1 05 05 9 2 2 2 15 05 05 1 15 15 05 15 1	3 50 7 21 195 16 35 115 325 70 79 83 82 73 715 575 56 53 33 135 2 45		F L F F L E F F D L F W W W W W W W W W W W	20 30 2 45 4 15 90 65 20 10 40 50 60 8 10 0 15 35 15 15 20 10 0	

D t d b	H I S F	B	L t t u l		L b	H g h t	R m k
			N t l	S t l			
1907	m						
F b y 10 SS — niz	9	1	10		W	20	S N t } S l t t w d d m t h t h S l t n t l w l C p h t g p h S l 30
	52		22		W	60	
	52	1	31 5		W	60	
	19		3		W	25	
F b y 11 GN	9	1	64		Γ	10	C H g h d t h d l d 60 w y l b
	40	)	53 5		Γ	20	
	38	1	16		Γ	10	
	11		11		Γ	75	
	9	1		45	Γ	1	
	35	2		85	L	20	
	35	1		11	l	25	
	35	0 5		11	Γ	35	
	25	1		27 5	F	1	
		1		30	l	15	
	21	4		13	E	25	
	22			58	Γ	10	
	20	0 5		61 5	Γ	0	
	18			88	Γ	10	
	8			93	Γ	10	
	17			82	W	10	
	1			76	W	10	
	10			3	W	75	
	7	2		35	W	1	
		1			W	75	
	1	9	9 5		W	120	
	50	4	15		W	10	
	47	1	25		W	30	
	47	1	29		W	30	
	4	0 5	40		W	10	
F b n y 12 SS	9	17	54		D	35	C p h t g r p h 111 51m
	11	1	20 5		l	30	
	8	1	14 5		l	10	
	4	0	10		Γ	20	
	8	31	1		D	30	
	9	2		13	E	5	
	8	5		41	F	35	
	55	0 5		47 5	Γ	20	
	50	4		72	Γ	70	
	16	1		60	W	30	
	45	1		63	W	70 ±	
	12	1		57	W	30	
	9	6	25		W	20	
	24	3	35		W	30	
F b y 13 GN	9	0 5	69		Γ	10	C p h t g l l 8 31m 01 18 d 101 15
	29	0 5	67 5		Γ	10	
	29	0 5	65 5		Γ	10	
	27	0 5	60 5		Γ	15	
	26	1	5		F	15	
	24	2	55		E	25	
	21	2	51		Γ	15	
	20	3	20		Γ	20	
	18			10	Γ	20	
	16	0 5		12	Γ	2	
	15	1 5		16	D	15	
	13	6		43	Γ	35	
	10	1		59	E	10	
	9			8	E	15	
	8	0 5		8	D	40	
	7	1		88	W	25	
	6	0 5		75	W	20	
	5	1		69	W	55	
	0	1		62	W	45	
	8	58		58	W	20	
	9	37	1		W	20	

D t d b	H I I	B	L t d		L mb	H ght	R m k
			N th	th			
1907	M						
F b y 13 GN	9 36		6		W	10	
— id	35		85		W	30	15 w y f m l b
	3	1	105		W	15	
	34	4	15		W	15	
	31	2	25		W	15	
	11		7		W	3	C A d t h d l 120 y f m l m b
							C h t g p h 9 11
F b y 14 SS	8 42	05	60		E	10	C
	10 8	4	50		E	10	
	9 50	05		9	I	20	
	59			17	D	1	
	59			19	L	10	
	56			45	D	15	
	6			27	D	10	
	5	1		485	E	20	
	53	1		49	E	15	
	51	05		79	W	15	
	50			695	W	15	
	49	05		68	W	15	
	8 4			75	W	150	C h l l l a l t
	9 17	1		345	W	20	
	47	15		32	W	4	
	45			27	W	60	D t h d l d
	10			25	W	180	A b t l g g d t l d l d t d
							( O d t i f t h t t h t h n
	8			10	W	100	B l t m t l l S N t
	8	05		8	W	15	O d t d f t h t t l t h
	5			16	W	10	C N p b t O d p l d b t h w y
	8			15	W		
	7			13	W	90	
	0	25		11	W	65	S l t t w d
	8 57	2	15		W	20	
	57	2	18		W	20	
	50	2	215		W	30	O t
	50		27		W	60	A l l m b d t d t l + 20 W
	10 10		3		W	10	
			40		W	15	C p l t g p l 8 42 d 9 h 8
F b y 15 GN	0 6	05	61		D	15	
	0	4	52		E	50	85 l g l C
	8 57		81		D	20	
	6		28		L	0	
	55	2	23		L	15	F t
	58	2	20		L	20	
	58		75		E	15	
	5			9	L	15	
	1	2		17	L	30	
	50	2		22	E	2	
	43	3		485	L	0 & 15	
	45	05		80	W	25	
	9 28			57	W	10	
	26			545	W	10	
	25	5		33	W	60	
	20	2		28	W	25	
	16	5		19	W	30	
	11	5		1	W	90	5 l g h O
	10		1		W	10	C h t g p l 8 h 26 d 9 h 0
F b y 16 GN	9 40	6	51		F	60	
	37	0	415		D	30	N t f n d C
	37		39		D	0	
	8 47	1	36		D	25	C
	47		385		E	20	C
		10	17		E	1	
	8 38	05	105		D	1	
	8 47			8	D	15	C

[illegible]

D t l b		H I S T	B	L t t l		L m b	H g l t	R m k			
				N t h	S t i						
1907											
F b —	y 19 td	G N	11 5	3		21	W	30	S N t B y b g l t l t 50 n C T l f w f l t + 28 W C p h t g p l 8 l 19 d 9		
				3		18	W	30			
			10 20	2		1	W	60			
			17	1	0 5		W	60			
			12	1 5	33		W	20			
			10	1 5	38		W	15			
F b y 20	S S	S S	9 22	2	51	I	15	O h g g B g l t t b B g h t p t bl Mg D d D I m d f t C  A l w b g h t b n l S N t  V y f t  A C t m d t h d f t l q t C i l t p h 8 40  L w b g l t D d g l y f t C B l t w t l t w l k l l p b l y b l t f t N Mg I T l b g l t t b  D D 5916 8 b b b b l d 49241 b g h t t b I t  30 O  F t O p l t g p h 8 36			
			20	0 5	35 5	E	25				
				8 5	25	E	100				
			0	1	18	I	0				
			8 58	0 5	15	E	15				
			57		12	E	20				
			56	2	4	E					
			45	4		E	05				
			42	2		E	10				
			41	1		D	10				
			37		20	E	10				
			35		25	E	10				
			34	2	50 5	D	10				
			34		79	E	10				
			9 40	1	7	W	30 ±				
			38	4	65	W	10				
			37	4	54	W	15				
			35	4	32	W	20				
			33	1 5	23	W	40 ±				
					19	W	60 ±				
					5	W	15				
				29	5	34	W		35 & 20		
			F b y 21	S S	S S	9 20	1		23 5	D	25
						18	2		12	E	
25	2					E	15				
15	3	1				E	75 ±				
8	4	5				E	75 ±				
		10 5				F	L w				
5	1	21				E	15				
2	1	29 5				E	15				
0	2	37				D	60				
8 7		48				E	10				
54	1	69				E	30				
49	3	72				E	60				
47	2	77				E	15				
46	1	81				E	20				
43		71				W	10				
42		69				W	35				
9 49	1	26				W	4				
47	2	28				W	10				
47	0 5	20				W	2				
46		15				W	10				
45	2	9				W	10				
43	2	1				W	30				
42		8 5				W	15				
10	0 5	15				W	10				
37	3	1	W	20							
35	1	34 5	W	15							
30		83	W	25 ±							
27	2	78	E	20							
F b y 22	G N	G N	9 12		52 5	D	10				
			10	4	21	D	25				
			9	1	8	D	10				
			8	1		E	15				
			8	1	5 5	E	15				
			7		8	E	15				
			7		16	D	25				
			7	1 5	17 5	E	15				
			6	3	22	F	15				
			6	0 5	24	E	15				



D t d b			H I S T	B	L t t d		L m b	H g l t	R k
					N t h	S t h			
1907			v						
F b	y 25	G N	8 26	2	6		D	5	V y b g l t b t b g l t D D b f l m t
			9 21	1		135	E	10	5 h g h b t
			20	1		28	D	10	
			20			33	E	20	
			19			37	I	10	
			15	3		56 5	D	45	90 h g h n O
						60	D	100 ±	Tw l t g t k b t h d t h d f m l m b
			6	4		66 5	I	45	m g t t p
			8 23	0 5		71	D	20	O
			23	1 5		73	D	35	C
			9 4	0 5		81	D	35	P b b l y 10 w l t d m l t
			8 23			88	L	30	C
			3			76	W	10	O
			8			6	W	7	O S l t t w d
			23			64	W	20	O A w y f m l m b
			10 36	1		40	W	10	
			36	1		36 5	W	20	
			35	1		28 5	W	10	
			3	0 5		26	W	20	} O t O
			84	0 5		21	W	30	A w y f l m b
			32		18		W	2	
			32	0 5	19		W	20	
			30		2 5		W	60	B l l w l l m t t l l m b t l t
			25	0 5	30		W	95	+ l c W
			24	3	51		W	0	
			23	4	56		W	30	O O
			18	0 5	72		E	15	O p l t g l l 8 23
F b	y 26	S S	9 11	1 5	81		E	20	
			9		56		D	1	
			0	2	38		E	30	
			8 59		30		E	0	
			58	1 5	28		I	20	
			58	1 5	23		D	0	F t
			56		19		F	0	
			55		13		L	0 ±	80 O
			1	2	10		I	10	M t l l
			4			11	F	3	D t l l
			43	7		21	I	20	
			41			8	E	15	S l t t l w d
			38	1		38	I	25	
			36			4	L	30	S l t l w l
			36			58	I	10	
			32	2		70	E	5	
			32			72	I	10	
			30	0		83	I	20	V y f t
			44			79	W	120	C V f t
			29			73	W	20	V y f t
			9 46			67	W	10	
			45	2		5	W	10	
			12	0 5		41	W	15	
			42	1		10	W	35	
			40	2		1	W	15	
			39	1		14	W	45 ±	D t h d
			39			12	W	20	
			36	1		10	W	70	
			8 44		2		W	30	O D t h d
			35	3	6		W	0	
			9 25	12	0		W	70	S N t
			21	4	29		W	5	
			16	8	54		W	30	
F b	y 27	G V	9 45		33			15	O l h t g l l 8 19 d 8 h 44
			42	2	27		F	20	A d t h d t k
			40	6	0		D	0	
			7	8	8		E	60 & 80	D p m t l l p d l y h g O
									d i p l d t d t l

D t a b	H I S T	B	L t t d		L m b	H g l t	R m l
			N t l	S t l			
1807							
F b y 7 G N			2				
	9 1	05		1	H	5	
	0	3		135	I	10	
	0	4		21	E	1	Slightly t l O
	8 35			6	I	10	
	35			32	E	10	
	58			39	I	35	O d t l d
	59			40	I	30 ±	D d
		3		4	E	30	S m t l by t l s l O
	48	1		745	E	15	5 O
	16	25		83	W	25	
	1	1		61	W	1	
	10 7	15		9	W	35	
		2		42	W	30	
		4		26	W	60	N w t t p
				165	W	20	
		1		135	W	30	
				10	W	15	
	J 1	1	8		W	25	Oh g g
	50	18	20		W	20 & 15	D
	17	4	53		W	30	
							O l l g l l s 35
y 28 S S	9 28		79		D	25	D t l d
	32		37		L	30	D
	15	6			E	30	75 O } C t l by t l t t p
	10		13		E	25	
	J	(	8		L	15	
	J		4		I	10	M t l l
				10	E	50	
		25		13	F	60 & 30	90 O
	8 J			26	F	10	
	58	15		32	E	20	
	55	05		50	E	5 ±	B g h t f 25 f m b f t l t
	3	1		00	F	10	
	1	4		68	I	60 & 30	
	4	15		82	W	1	
	44	2		63	W	5	
	10 8	05		51	W	0	
	6	4		13	W	30	
	1			10	W	15	
	2	1		28	W	30	N t t p
	0			1	W	70 ± & 120 ±	I w l t g t l t l t h b g t l t l f t h t l g h t l b t l t w g t l y
						80	O
	9 5	1		8	W	25	
	51	25		3	W	20	
	1	18	19		W	30 ±	
						100 ± & 50 ±	F l t O h g l t y d l l d b t h w y t l t
						40	+ 22 W V y b g h t C
	8		53		W		O p l t g p l s 21
M 1 C N	10 17	5	42		L	10	
	1	1	31		I	30	
	15		24		I	30	
	4	15	20		L	30	
	0	2	17		F	30	
	0	2	14		E	30	
	0	05	11		L	1	
	0	1	8		I	20 ±	
	9 57	1	1		I	45-85	D t h l l m t
	6	8		9	I	40	
	55	2		22	I	20	
	4	1		14	D	45	
	52	2		49	E	80	
	50	2		66	E	20	
	48	3		72	E	100	
	42			83	W	15	
	40	25		66	W	25	



D t d b	H I S T	B	L t t d		L m b	H h t	R m l
			N t l	S t h			
1907							
M h 1 — t z	GN	10 35 36 36 30 5 21	25 3 4 1 13 4	44 15 10 5 25 52	W W W W W W	25 25 30 25 60 10	C p h t g p l 8 <sup>1</sup> 21
M h 2	SS	9 36 35 30 30 29 8 27 6 25 4 19 14  12 11 8 7 5 54 1 1 45	05 15 1 1 1 1 1 1 1 C 1 1  1 15 35 05 1 4 1 2	515 45 245 21 18 18 13 105 85  6 95 165  215 27 49 63 67 48 13 7  52	E D D F E E D E F D F E E W W W W W W W	10 25 20 40—2 20 20 25 2 2 45 20 80 ±  40 25 20 40 40 ± 30 10 10 3	S N t   B l g l t d m t l l N M g l l l b g l t  C p h t g l l 9 <sup>1</sup> 8 g b d w l b g S W q l t
M h 3	GN	9 43  35 34 34 32  32 31  30 25  21 18 58 5 54 54 5 0 45 45	3 2 05 3  1 7  0 145  15  1 1 2 45 05 05	49  45 22 195 145 13 125 7  4 8 29  53 9 49  3 7 38 50 8 83	F  F D E E E E E E E D D W W W W W W W W	20  40 35 15 60 50 ± 40 10 0 30 30  20 15 20 15 20 3 0 10	I t h t h d f t h p m n C l g h l y d l l d t l T l l O  O O A l d l t w y f l n l T l l t t l p l t l t — 27 l t l o m b t t l y f 2 l l h l t d l p l A w y f m l m b T p f f l t O  O p l g p h 8 <sup>1</sup> 13
M h 4	SS	9 58 57 54 52 49 49 47 8 12 9 46 44 44	  05 1 05 1  2 2 1	56 495 47 305 28 23 7 75 1  2 8	E E E E E E E E E E E E E E E E E E E	10 100 10 35 ± 15 10 15 85 50 20 10 60 ±	D t l d f m l m b n O T r f t M h t l l O O A l t g d e t l l t k S l g t l w d

D t d b	H I S I	B	L t t d		L b	H ght	R k			
			N th	S th						
1907										
M 14 — 12	SS	9	41 40 40 0 0		11 1 16 21 31 40	F L J I E L	30 25 40 ± 30 60 L	D t l d S N t C t d t h l t l m B g l t t k t t h t t l l t l m		
		8	45 4 4 45 12 C	0 1 J 5 0 5	48 50 52 5 4 67 41	L F F F E W	50 ± 10 10 20 1 4		A C t k p t l t p f t h B l t d t h l t p m C i l t g p h 8 l l 19h 24m C S l t t l w d N p m O 35 C N i m O A O t k f t l t l b h t l t —1 E	
		10	20 20 20 20 16 13 C 4	0 0 1 1 3 13 ( 1	40 36 34 33 6 Eq t 9 41 0	W W W W W W W W	35 20 15 10 15 35 40 20 30			
		8	20 14 10 10 7 5 0 0	1 5 8 1 5 1 1	51 44 33 27 1	E L E E E E F 1	10 20 3 25 1 60 70 60 40 d 30			
		9	54 51 4 47 6 4 8	2 0 5 0 5 4 1 5 1 5 1 1 1 1 3 1 3	60 63 81 83 ) 68 46 19 10 15 1 6 8 5 3 27 48 50 5	1 E 1 W W W W W W W W W W W W	15 30 10 40 25 25 16 10 15 15 1 10 10 10 1 15 5			
		10	26 21 24 22 2 1 20 18 17	1 5 1 5 1 1 1 1 1 1 1 1 3	1 6 8 5 3 27 48 50 5	W W W W W W W W W W W W W W W	1 10 10 10 10 1 15 5			
		9	20 10 4 43 40 37 38 50 4 40 30 34 3	6 7 0 6 0 0 0 3 5 1 4 2	58 35 5 14	I F E F E W W W W W W W W W	180 ± 45 20 45 15 20 10 40 ± 20 2 10 10 10			
		8	4 43 40 37 38 50 4 40 30 34 3	0 6 0 0 0 0 0 3 5 1 4 2	14	38 6 1 75 70 23 5 6 5	E F E E W W W W W W W W W			20 45 15 20 10 40 ± 20 2 10 10 10
		9	20 15 12	4 2 10	66 40 85	E E E	150 ± 35 30			V y f t C p n 9 b d d 170 h g l

D t d b	H IS I	B	L t t l		L b	H ht	R m k
			N t l	S t h			
1907	H						
M h 7 GN	9 7	5	2 5		L	10	
— 72	5			3	F	10	
	3	1		37	E	50	A t 4 l f w t w d f m t p
	1	15		61 5	D	15	
	0			69	E	20	
8 8	8			60	W	0	
9 28	28			80	W	15	
	32			6 5	W	45	
	32	1		23	W	0	
	32	3		18 6	W	0	
	30	3		11	W	0	
	28	5	18 5		W	45	
	6		46 5		W	0	
	5	1	55		W	1	
	18	1	60		W	50	S N t O p l t p h 8 h 30 d J 10
M h 8 SS	9 7		8		P	10 ±	D t h d f m l m b d t l t t } V y i t
	7		7		I	10 ±	
	3		49		E	25	
	21		43		E	15	
	29	1	36		L	10	
	15	13	28		E	30	
		15	18		F	20	
	8	3	3		E	35	
	2	15		2	I	40	
8 59	59	2	32		F	2	
	56		3		E	25 ±	P t
	58	0	64		E	30	S l t t h w d
	51		67		E	20	
	18		82		W	20	l t
	46	2	73		W	1	
	4		66		W	10	
9 58	58	3	52		W	0	
	1	0 5	98		W	50	
	50		30		W	2	
	45	18	18		W	0	
	38		12		W	35 ±	A l t t k d t l l f m l m b
		1	19		W	15	
	36		27		W	15	
	35	0 5	37		W	15	C l l t p l 8 4 i d p h 7
M h 9 GN	9 10	5	1		I	45	
	7	19	8 5		E	40 & 0	
	5	1	7		I	2	
	4			11	E	15	
	4	0 5		18	E	1	
	3			28	L	20	A t k p l l t l m b l C t h t h t k b t 60 l g h
	2			31	E	0	
8 59	59	1 5		37	E	20	
	55	4		43	E	0	
	50	0		73	D	30	F t
	48			83	L	25	
	47			76 5	W	60	A b k l l 5 l g
		6		5	W	5 & 1	
9 5	5	2		38	W	45	N w t t p
	20	1	0		W	20	
	15	1	17		W	40 & 50	C p h t p h 8 l 3 d 9 l 4
M h 10 SS	9 11	4	3		L	20	
	9		43		D	1 ±	
		15	3		P	20	A l t l d l d l t 40 l g h f t t O
8 56	56	0 5		30	I	30 ±	
	58	0 5		42	I	40 ±	B l C A C t k t t with t l l t l m

D t l b	H ISL	B	L t t l		U mb	H g l t	R m l
			N t l	S t l			
1007							
M 110 — t <sub>2</sub>	SS	J 38 1 1	1 0 1	9 53 49 8	W W W W	± 5 2 20	} O t d t t p C h t p l q l g
M h 11	SS	9 8 6 4 2 17 10 (	3 0 r 1 4 2 0.5	74.5 71.5 6 52 31 1	I I I I I I I I I E F I I F W W W W W	20 10 1 5 5 ( 1 0 10 60 20 1 15 30 ( 20 10 20 0 & 10 45 ± 2 10	I C t p m t l m b t l t + 6 E l i f w th d f l t + 10 E S l t th d  C A l d l t y f m l m b O h t g ph s l s
M h 12	GN	8 55  45 19 41 10 10 38 36 94 80 9 9 6 r 3 1 0 0	3 8 0 2 1.5 5 0.5 2 3 1 3.5 1 3.5 1.5 1.5	51 33.5 4 10 19 2 27 40 4 50 ( 37 2 18 1 10 22 28 35	E I I I E I I I I I W W W W W W W W W W W	60 30 30 30 60 30 35 3 50 0 60 15 3 30 10 30 30 3 0 40 40	A t m f w f m t p f l t + 15 E  V y f t S l t th d  } O t d b y t t t p O h t g ph s l s m
M h 13	SS	J 16 9 9 9 1 8 59 59 78 15 40 35 32 32 0 17 9 47 46 18 41	5 1 1 1 0.5 1.5 1 8 1.5 1 0.5 0.5 1	2 35 20 24 19 9 4 7 24 44 58 64 8 88 61 57 49 7 19 5	I I I I I E E E L D E I I — W W W W W W W W	50 40 25 90 20 10 5 2 25 110 10 0 20 20 40 0 10 20 15 50 ±	T l ly t l m b t l t - 37 E n C f p f f l t - 68 E } O t d t t p B d t t l T t T t l n t w t w l

D t l b	H IS 1	B	L t t d		L m b	H h t	R m k
			N r t l	S t l			
1907							
M h 13 — nil	SS	9 38 36 36 33 32 30 8	15     3 4	3 5 7 5 9 ) 34 4	W W W W W W W	35 15 20 25 20 25 15	} C t l by t l l t p O p h t g l h 8 l 38m 9 l 1
M l 14	GN	9 33 25 32 81 30 30 29 29 25 5 25 2 23 22 20 50 47 46 42 40	4 12 2 2 4   1  1 15 8	73 63 53 27    4 8 11 1 30 3 5 42 5 48 61 65 62 40 5 35 15 2 45	F E E E E E E E E E E E E E E E E E E E	2 390 45 0 1 1 30 60 90 40 45 30 20 1 35 3 25 30 30 30	
M h 15	GN	9 25 20 20 14 13 1 10  2 15 8 56 55 55 9 55 40 38  35 3	4 6 15 2 0 5 1 5  2 15 1 3 0 6 3 2 1 4 1	31 26 10 5 C   3 15 5  40 43 48 2 62 80 73 13 15  18 26 41 40 73	E E E E E E E E E E E E E E E E E E E E	5 50 30 15 25 15 0 & 60 30 30 30 20 20 10 10 4 30 20 10 30 30 25	} O t d 60 hgl C A l l t d t h d l d w f th O p l t p h t b m g th H ght 55 } O t l t t l by t l 60 hgl C O l t g l h 8 l 31m M l l } O t d t t l } O t d by l t m
M h 16	SS	9 10 5 8 48 47 45 4 40 35 34 90 80 27 9 48 48 38	1 3 4 0 5 0 5 2 1 0 5 0 5 1 1 0 5 0 4 5 1	8 52 34 2    2 11 17 2 47 63 69 5 72 88 47 34 C	E I E L E F E E E E E E E E E E E E E E	10 2 15 10 10 35 3 40 15 0 25 15 10 15 90 50	



D t d b	H I S T	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1907							
M h 19 — ntZ	SS	8 58 50	2 16	2 0	D E	15 35	M t l l T l t p t f t h l t l t — 2 D w b l M g
		45 41 40 35	1 1 15	45 68 5 73 62	E E E W	10 25 5 0	} S l n t t w l h t l T l r t l m b t l t — 67 W O A l t h l l U t
		10 6 9 50 50 50 45 48 48 36	2    1   16	35 21 20 17  2 7 34	W W W W W W W W	100 15 20 60 20 20 10 10	
		28 20	1	49 81	W W	40 & 90 10 15	A g l f t l p m t d t t l T h t l l t 85 h g l O
M h 20	G N	8 12 40 39 37 34 47 30 28 47 25	2 2 7 5 4  8 1 2  18	25 17 11  45 18 5 23 5 51 73 78 68 5 64 5 40 22 5 21 19	E F F E E E E W W W W W W W	15 10 20 20 35 30 90 50 1 5 10 20 20 40 80	P g l d L m b w l l g f t 9 l 50 m O p h t g p h 8 l 25  S l t t l w d  O S l t f l t — 27 D w l t 150 A t m f w t w d f m t t p C N p m n O O  D t h d D 90 O O p h t g p h 8 l 47 m d 9 l 6
M h 21	SS	9 8 4 8 56	  6	73 56 5 26 20	I E F D	10 10 10 80	M t l l T h t p m w b l N d M g b t l t w t h m t h n H y d g n
		54 51 45 37 29 29 9 10 38 37 35 33 29 28 27	13  10 05  1  1 05 05 2 2	85 20 31 82 88 45 5 38 29 25 5 14 12 16 5 20	D D E E D D W W W W W W W W W	10 10 25 15 30 25 40 10 25 10 25 40 15 40	D b l           B g h t t b T w t k m t g t t p C t d t t h p m t l t + 8 5 W b y O t k
		25 21 18 14 10	15 3 4	24 28 5 37 56 79	W W W W W	2 80 7 10 10	
M h 22	G N	8 81 81 91 80	1 15 05 05	22 5  10 12 26	F L E E	20 15 10 10	O p h t g p h 9 l 18 d 9 l 89 m

D t d b	H IST	B	L t t d		L m b	H g l t	R n l
			N t h	S t h			
1907	M						
M h 2 — t d	GN	8 30 28 27 2 45 41 38 36 31 34	0 15 3 05 1 2 6 3 05 0	8 45 55 5 7 38 10 20 3 38 5 05 5 5	E I E I W W W W W W	10 1 35 1 30 10 35 30 15 15	D bl S m t l b y t l 30 C A t l w y f m l m l d C 10 C O p l t g l l S l l m d S l 3
M h 28	GN	8 4 48 12 40 36 35 3 12 3 28 9 4 8 18 1 50	2 35 1 1 2 r 05 0 1 0 1 3 0 1 5 6 52 74 r	3 28 0 r 7 r 5 r 1 r 95 70 74 77 79 r 91 8 70 11 11 19 5 6 52 74 r	I I I I I I I I F F I W W W W W W W W W W	10 1 1 0 0 1 6 r r 2 20 1 r 10 0 70 2 r 10 10 r 30 3 r 0 0	O D t l l P t l y d l h d A l l l l l l l l l l l C l g g D d l l g l t l l l l y W t d l l l m l t l C p l t g l l S l 12
Ma 1 24	SS	9 7 8 58 51 r 10 40 38 32 9 30 28 24 23 1 20 18 18 1 r 15 12	1 2 3 4 05 1 1 2 6 1 1 1 05 15 05 05	( ) 1 r 7 r 205 2 r 81 73 71 375 3 r 5 12 17 22 48 50 50 60 72	I F F I I W W W W W W W W W W W W W	1 2 r 1 r 30 70 10 10 20 20 4 1 r 20 10 20 20 5 20 20	D t l d B g l t t l l C d l l l g l t l t d F i m t t l t p S l t t l w d C p l t g p l S l 0 l l l l
M h 5	GN	0 r r 3 3 8 50 46 45 48 40	05 r 1 8 1 1 1 1	82 r 2 215 16 85 55 345 41 515 71 80 82	I E E E F L E E E F W	2 r 40 30 30 2 r 90 40 20 10 15 20 10	A t k b t 4 l o g p d s u t h w d f m i t t p



D t d b	H I S T	B	L t t l		L m b	H g h t	R m l
			N t h	S t h			
1907	v						
M h 25 - t d	G N	8 37	1	73	W	20	
		9 1		95	W	2	D t h d
		15	05	50	W	20	
		13	1	38 5	W	20	
		13	5	35	W	2	
		13	2	21	W	25	
		10	2	29	W	2	Ch g g Th p m w d t tly bl
		10	2	34	W	45	D D d b
		8	1	52	W	20	B g h t O l g M h b g h t O t l th
		1	1	55	W	20	l t p m
		1	1	58 5	W	1	
			1	61	W	20	
M h 26	S S	9 2		58	E	10	C p h l p h 8 12 d 8 35
		8 7	1	29	E	0	
		58	05	26	E	20	
		55		21	D	25	
		53		22	T	10	
		53		10 5	E	30	M t th p m t l t + 24 E t t p
		51	1	15	E	25	
		46	5	55	L	20	E t d b g l t
		35	6		E	40	D b l f t t l th M t l l
				14			th d f t l p m w w l l n
		30	1	25	D	L	N d Mg
		30	1	26	E	4	M t l l
		28	1	32	E	15	
		24	1	52	E	20	
		22		67	L	20	
		20		9	l	15	
		18		81	E	10	} V y f t
		16		74	W	25	D D t h l
		33	1	53	W	10	
		32	3	40 5	W	30	
		31		38	W	30	
		28	9	10 5	W	55	D b l
		22	15	9	W	20	M t l l
		20	1	10 5	W	2	
		18	9	30 5	W	35	N t l l f tly ble N d Mg
		10	5	56 5	W	65	
M h 27	S S	9 13	1	74 5	T	20	C p h t g p h 8 l 5 m d 8 l 42
		36	8	34	D	5 30 &	A g l f f p n
		30	1	17	D	0	
		24		10 5	l	20	C t d t th l t b
		22	9	23 5	T	10	M t l l B t d t l t - 13 D C
		12		7	D	10	
		10		63	T	50	D t l d
		9		69	T	25	
		6		79	E	60	D t l d
		0		70 5	D	5	
		8 53		65	W	25	D t h d
		10 10	4	40	W	50	
		7	8	4	W	50	
		3	1	17	W	10	
		1		12 5	W	30	V y f t d b l f t g th th
			1	9 5	W	20	
		9 53		5	W	35	A t l w y f m l m b
		57	4	10	W	20 & 35	
		55		33	W	10	
		55		38	W	10	
		50	9	54 5	W	10	
M h 28	S S	9 8	05	81	E	20	C p h t g p l 8 l 35
		7	05	80	E	20	
				68	E	10	

D t d b	H ISJ	B	L t t d		L b	H gh	I m k
			N th	S th			
1907							
M 1 28 — id	S S	9 4 0 9 1 0 4 1 3) 3 34 31 3 9 37 32 34 2)	42 365 26 11  05 (  1 ( 1 2) 20 3 21 10	18 28 35 12 72 78  6 60 13 29 ( 1  4 11 0 32 53	E I I F I I I I E W W W W W W W W W W	20 3 20 30 ± 15 0 25  60 ± 20 10 25 10 45 & 30 35 20 10 ± 10 10 10 10 43 6	l t B l t V y f t  A y f t l t t l d t l d f l m l  N t t l A y f t l t l t h l t k M t l l D b l N Mg F l b l t t l C p h t g p l 8 l 49
M 1 29	C N	) 3 8 3 16 4 42 1 10 3) 3) 30 30 34 31 9 16 16 11 0 ( 6	39 17 1  05 0 1				

D t a b	I IST	B	L t d		L l	H g l t	R l
			th	s th			
907							
M h 31	SS	J 10	8	50	I	0	
		1	7	27 5	I	10	Cl N Mg I b g l t t b 120 C
		8 57	4	1	I	0	M t l l
		54	6		I	1	
				1 5	D	2	
		52		8 5	D	45 ±	M t l l
		1	0	13	E	10	B d t l d d l
		40	0 5	15 5	I	40	M t l l
		46	3	2	I	70	Sl t t w d m O t h II
		43	7	36	E	0	
		41	2	39	E	2	
		38	4	15	L	40 ±	C t C
		3	4	51	I	100 ±	10 n C
		7		65	L	85 ±	V y f t
		20	1	80	W	30	D t h l
		44		5	W	5	D
		13		68	W	5	
		4	0 5	47	W	10	D t h d
		41	1	41	W	5	D b l
		40		11	W	90	7 C
		37	0 5	1	W	25	
		36	3	0	W	15	
		33	1	14	W	3	
		31	2	35	W		
		7		37	W		
		6		40	W		
		4	5	5	W		
Ap 11	SS	9 5	7	52 5	I	90	C l l t l l 9 l 11
		1	0 5	27	F	10	70 C
		8 6	8	L l t	I	20	
		4	1 5	11	E	30	
		58		13	F	30	
		0	7	20	E	8	M t l l A l w p m t l t k 3
		43		31	F	35	Ol g s
		40	1	40	L	10	A t l p g t l g l t m t t h t
		36		46	I	8	l m
			2	5	F	110	Sl t t w d
		31		70	I	25	D
		30		5 5	E	5	D
		8		8	E	40	D
		10 56		7	V	35	D t l l
		6	0 5	50	W	10	
		6	4	17	W	30	
		5		40	W	25	B d t t l
		5		35	W	35	D t l d
		55		33	W	20	
		3		22	W	40	
		9 11	1	17 5	W	0	C t d t t p
		41	1	12	W	20	
		39	8		W	10	
		36	1	10	W	3	
		32	4 5	23 5	W	0	
				53	W		
Ap 12	GN	10 45	1	71	I	45	N t t p
		42	6	52 5	E	60	P l d
		40	5		D	35	C l h t g p l 8 h 39
			1 5	0 5	E	15	
		8 37	2	16	E	20	
		37	1 5	41	L	0	
			1	46	I	45	
		10 35	6	64	D	4	
		32		76	E	60	
		30	3	64 5	W	45	
			1 5	4	W	30	
		19	1	1 5	W	25	

D t n d b	H I S F	B	L t t l		I m b	I t	R k
			N t l	S t h			
1907							
Ap 1	G N						
— t d							
	10 46		1		W	20	
	47	10	2		W		
	45	1	3		W	50	
Al 13	SS						
	10		54		F	50 ±	Sl t n t l d
	35	15	35		l	30 ±	D t h l
	5				F	35	F t
	30	3			L	30	
	2)				l	0	
	2	2			I	20	
	0				E	10	
	0				F	0	
	10				I	60 ±	D t h d
	14				l	10 ±	
	8 33				W	1	
	3				W	0	
	31				W	30	
	30	1			W	15	
	)				W	40 ±	
	10 6	1			W	15	
	(				W	35	
	4				W	15	F t
	9		23		W	30 ±	A f t l d l t
	(	4	71		W	3	C l t g p l 8 32
Al 14	G N						
	9 1		9		D	30	
	41	0	5		I	30	
	11	05	4		I	0	
	41	05	40		I	30	
	30		81		F	10	
			23		F	30	
	37	1	18		E	1	
	36	1	12		F	10	
	36	1	10		I	1	
	36	0	8		F	4	
	36	1	4		I	30	
	3		3		I	0	D t l l
	3	1	1		L	0	
					I	1	
					I	1	
	34	1	135		I	15	l t
	34	1	1		I	20	D bl V y b g l t
	3	1	25		I	0 ±	Sl t t h w l
	30	1	405		I	20	
	30	3	48		F	30	
	)	1	8		E	10	
	7		82		W	30	
	0	1	50		W	10	
	49	1	21		W	10	U l l p t w n d l t h d f m l w
	17	2	53		W	20	C l t g p h 8 51
Ap 15	SS						
	9 16		68		D	30	
	11		49		E	60	Sl t g l d t l d
	10		30		I	90	D
	8	4	24		E	70	S t d b y l t g t k
	6		16		D	10	Sl t t h w d
	J		1		L	60 ±	Sl t t h w d
			6		E	1	D
			05		I	10	A l l l D t l l
	1				F	30	
	8 58	1	12		E	20	
	57		215		F	1	
	56	3	335		F	10 & 20	
	53	0	545		I	2	
	50	05	94			15	
	47		82		W	20	
	46	6	51		W	55	

D t d b	H IST	B	L t t l		L m b	H l t	R l
			N t h	S t l			
1907							
Ap 15 — t <sub>2</sub>	SS	8 42 40 37 31 30 29 28 26 25 21		41 3 7 05	W W W W W W W W W W	15 2 40 60 10 20 1 25 5 10	l t t d Sl t th l D T l m t l m l t l t + 59 W C l l t p l
Al 16	GN	9 5 8 50 9 4 8 45	05 2 1 1 05	3 1 1 34 83 7 405	E E F D E W W W W W	20 15 15 25 20 60 0 30 35 30 15	D bl B d d d n l y m t l n l t l t + 14 W D bl O p l t l l 8 t l
Ap 17	GN	8 53 53 50 7 6 5 4 4 4	3 2 15 1 3 15 15 2 2 4 05 1 05 15	5 80 335 385 415 44 8 545 2 37 28 8 2 17 205 235 83	E E D E L D W W W W W W W W W W W	15 10 20 25 20 0 0 30 20 90 20 30 15 20 2 20 30	C t l O Sl t t w l l t l F t B l t t l D bl C t l n C C l l t g l l 9 l
Ap 18	SS	9 1 8 59 57 56 55 49 47 45	1 4 1 05 4 1 6 2 9 38 32 31 30 20 28 26 5 24 15	51 53 34 25 22 37 48 50 66 72 71 40 31 19 115 1 85 14 19 295 67	L E E E E E E E E E W W W W W W W W W	5 30 1 10 0 2 60 35 30 60 90 10 10 25 15 15 25 1 50 20	Ab t l O l l d l l t l l O C l t d 2 f t l n t l O C O C O P f l y t l t l l l Sl t t l v l O l g Th l O p l t l l 9 l 8 l 9 l 4
Al 19	GN	9 2 1 0	2 9	78 685 53	E E E	30 30 50	D t l l O l y 6 b d n C

D t d b	H I S r	B	L t t l		L m b	H h t	R n k
			N t h	S t l			
1907							
Ap 1 9 — t z	( N	8 4	1	7 5	I	1 0 90 & 45	10 115 1 13 C t 8 34 8 d J 13 p t ly C l l g t t y d f t f
		38		11	I	40	
		37	1	1	L	10	
		37	1 5	6	L	1	
		36		10	L	10	
		8	1	16	F		
		34			E	1	A t l f t t l m l t l t — 26 E
		31	1	8)	L	0	
		34	0	42	I	20	C } C t l b y C t l t t p
		34	1	47	I	30	( J A l t t l t w y f m l m b
		34		1	I	45	
		34		9	W	30	A l t t l C
		34	0 5	76	W	30	
		1	1	8	W	4	
		9 16	1 5	2	W	3	
		1		30	W	5	
		14		19	W	90	B l t t t 80 C t l t — 1 W
		9	1	11	W	1	I p t l m l C t l t — 1 W
		8 34	32	6	W	2 60 45 & 10	A l f l l ly t l t
				74	W	15 ±	C t l 1 8 34 8 55 1 13
Al 1 10	S S	8 17	(		I	35	
		13	9	23	I	30	M t l l O ly b l O
		37	1	4	I	10	
		36			F	10	
		33	2	30	F	10	
		31	1	15 5	I	25	
		28	1	50	F	2	O l g t t l l
		23		0	I	70 ±	I t D t l l
		21	0	78	I	25	
		20		81	I	0	
		18	1	80	W	0	D l l
		18		7)	W	10	
		16	0 5	6	W	2	
		15	1	67	W	15	D l l
		13	1	7	W	75	
		9 9	10	27	W	10	
		7		1	W		
			1	16	W	10	
		2	11	34	W	60	
		8 51		(8	W	20	( l l t 1 l 8 40
Ap 1 11	( N	9 26	1	55	E	0	
		25	4	2	I	60	
		20	0 f		I	20	I k l l
			0	26	W	20	
		32	9	56	W	20	Th l t t l
		30	0	42	W	35	S l t t l w l
		28	0	9	W	45	
		27	4	11	W	1	
				37	W	20	W t l l
Ap 1 12	S S	8 43		83	F	10	F t
		40		65	L	10	
		38		6	L	2	
		31	6	4	F	20	
		28	3		E	15	
		28		45	F	0	A f t t k l t b f l t — 2 E
		28		10	F	9	A t k l t g t w d d t g t l l t
				18	E		p m
		3	1	42	F	2	D t l d
		21	3	4 5	F	60	50 O
		18		61 5	F	15	
		17		66	F	10	

D t n d b	H IST	B	L t t l		L m b	H l t	R l
			N t h	S t h			
1907							
Ap l 12	SS						
— t d							
	8 13			8	W	1	
	13			80	W	3	
	13			79	W	20	
	10			60 5	W	70	
	11	1		4 5	W	40	100 C
	9			36 5	W	65	3 b d t t l
	7	1		9	W	5	
	3		5		W	10	
	0		14 5		W	80	B d t t l N M l l g l t t b
	8 56	0 5	18		W	10	S N t
	53	1	21 5		W	10	V b l N M l F
	1	3	37		W	0	
	49		4		W	10	
	46	1	67 5		W	10	
	44		84		W	10	
Ap l 13	SS						
	8 57		79		E	10	O l t p h J 59
	6		60		E	10	
	5		5		E	40	
	48		10		F	10	
	48		1		E	0	
	46	4	9		E	15	
	40	J		43 5	E	70	
	37	1 5		67 5	E	2	
	10 2	0 5		82	L	15	
	8 35			77	W	10	D t l d
	33			60	W	30	S l t t w d
	32			55	W	10	
	9	3		43 5	W	0	N M l l t t b
	6	3		30 5	W	80	l l l t w l 7
	4			28 5	W	30	
				13	W	50	M t f t d p p d t 9 l 17 t l
	14	3	6 5		W	3	b l t t l l p t t t l t l t
	9 7	1 5	19		W	25	A t k b t l 2 l g l t l l
	6	4	25		W	35	d m t l m b t l t + l v
	1		4		W	15	T l p t t l t + 25 W l l N d
							Mg
							C p l t p h J 8 m
Ap l 14	GN						
	8 4		5		l	100	
	51	2	37		l	2	
	0	4	22		E	30	D l l O l y 2 b l C
	47	6	10		l	20	
	4			1	E	25	A t l 2 l d t h d f l l
	46	4		9	E	20	
	46			13	E	20	
	45	8		2	F	0	
	43	3		42 5	l	45	
	41	1		47	E	20	
	40	0 5		54	l	5	
	37			82	E	0	
	35			7	W	15	
	9 0			45 5	W	45 and 80	
	12	1		32	W	20	A l d b t (O h g h l t t f m l t
	7	4			W	25	— 30 t l t — 42 W
	4	10	1	13	W	40	Ab t 70 O
		4	25		W	30	O p m t l t l t + 13 W
	1		35		W	10	D b l O l y 2 b d O
Ap l 15	SS						
	11 4	0 5	56		E	30	O l h t p l 8 3
	t		38		E	0	B d t t p
	1 15	0 5	33		E	50	D t h d
			27		E	35	
		1 5	25		E	15	
		1 5	18		E	20	
			12		E	15	

D t d b	H I S T	B	L t t d		I b	H ght	R k
			N th	S tl			
1907							
Ap 1 15	SS	1		23	F	5	
— 12		3		8	F	20	
				68 5	E	10	
				8	W	5	
				46	W	0	
				42	W	20	
				38	W	60	A l t g t k 6 l g l l d f l b
				34	W	40	
		4		2	W	30	Ob d l d l y l g b k l l
Ap 1 16	GN	9	84	57	F	60	
		1	34	5	I	40	
		2	31	3	I	20	
		2	23	13	I	30	
		2	8		L	20	
		1	7		L	1	
		2			I	1	
				30	I	10	
		1	49	68 5	F	20	
		15	49	68	F	20	
		1	49	7 5	E	40	
		05	1	82 5	L	15	
			49	82 5	W	30	
			1	78	W	20	
		0	0	6	W	0	
		05	0	6	W	15	
			49	4	W	30	
		1	15	44	W	0	T l b d d w d l y t t l t p o m
		0		35	W	10	
		10	40	14	W	0	
		4	44		W	60	
		05	11		W	0	
		1	40	29 5	W	40	
			39	36	W	30	Sl nd d d t l d
		1	98	1 5	W	30	
			37	51	W	30	
		1	35	5	W	30	
				84	W	30	
Ap 1 17	SS	9	15	59	I	45	
		1	11	21	F	25	
			11	18 5	I	0	
		8	49		L	85	D bl
		1	33		F	10	R l Uy l b g
			37		I	0	
		4	36		D	20	
			81		E	45	
			32		L	10	
			30		I	2	
			29		W	10	
			29		W	40	
			27		W	50	
		1	0	50 5	W	20	
		11	9 37	17	W	2	
			31	11	W	15	
			9	34	W	1	
			5	51 5	W	10	
			27	69	W	0	
Ap 1 18	GN	8		62	I	45	
			J		E	15	
			7		W	10	
			6		W	40	
					W	45	
		15			W	20	
		2			W	10	
		05		20 5	W	15	
			12	24	W	90	



D t l b	H I S F	B	L t t l		L b	H g h t	R l
			N t h	S t l			
190	M						
Ap 118	GN	8 25	31		W	3	C D t l l
— id		11	52		W	40	
		5	65		W	±	C
		1					C r l t g l t 8 l 25
Al 119	SS	8 30	33		E	10	
		28	21		E	15	
		5	65		D	80	±
		13		715	E	10	±
		05					M l l t b
		50		575	W	30	C p m l 60 h l
		50	05	54	W	30	d f m l t — 76 t — 81 F
		49	2	44	W	20	
		48		14	W	10	
		4	35	7	W	3	±
		41	29		W	10	±
		40	3		W	10	V y f t p t b
		37	52		W	20	
		37	55		W	60	A C t l b t 4 l p t h g h t n
		34	85		W	20	b
					W	20	±
							V y f t
							C p l t l h 8 l 18
Ap 120	GN	9 10	27		I	45	
		7	10		E	60	
		8 46	12		E	30	B l t t l
		45	8		L	3	
		45	1		E	30	
		15		0	I	30	
		15		14	I	20	
		1		1	E	1	
		4		445	I	70	
		40		4	F	20	
		3	0	85	W	20	
		3	3	70	W	4	
		3	1	66	W	1	
		9 20		0	W	60	
		18	15	38	W	30	D d t t b l t t p
		18	2	33	W	30	} O t d t t,
		16	05	205	W	15	
		15		14	W	3	
		1		11	W	45	} C t d C
		14	105		W	1	
		13	1		W	1	
		12	66		W	1	
							( p h t g l h 8 l 21 m
Ap 121	SS	11 5	80		L	10	
		43	41		L	10	
		46	7		E	10	O l g h t l y d p l d t d
		45		1	L	2	
		43		17	E	20	
		10		4	D	10	T l f w l d 4
		39		60	D	20	
		37	15	8	W	60	±
		12 13		73	W	10	±
		12		5	W	2	5 O
		10		43	W	80	
		10		36	W	20	} t d t b
		10	15	33	W	1	
		11 14		175	W	90	C D t l d
		12 7		7	W	20	
		4	75		W	0	
		3	16		W	0	
		1	75		W	30	A t l b t 7 l f w t h g h t t p
		11 58	37		W	60	
		57	58		W	1	
		56	60		W		
		54	65		W	10	
							Th l
							C l h t l h 1 l 14

[illegible]

D t d b	H IST	B	L t t l		L m l	H h t	R m l
			N t h	S t l			
1907							
Ap 12 — t d	SS	8 15 9 15 11 10 7	0 1 4 2	66 1 34 28 1	W W W W W	100 10 0 25 35	Sl t t w d M t l t 9h16m
		7 4 59 59 57 8 54 6	1 5 3 1 0 5 6 1	9 25 31 34 5 49 56 61	W W W W W W W	0 30 40 ± 20 1 10 30 & 3 10	Oh d g p l l y C d D l h t l y l p l d t
							An g l l N p t b
							C
							C
							S N t
							C p l t p l S l 6m
Ap 16	GN	8 41 40 35 21 21 30 30 7 27 f 2 21 52 51 51 0 0 47	2 2 2 1 2 3 1 0 5 1 5 1 0 6	21 7 3 5 8 16 41 5 16 5 9 64 5 84 43 19 1 28 32 58	E E L E I E E E F E W W W W W W W	35 75 0 10 90 60 60 35 30 1 20 40 30 20 5 35 35	S V t l O O S l t t h w l I O t d t t l b t h l t f t h m t g t h t l m S l t t l w d S l g l t l y b d t t l
							O D t h d
							D t l l
							A g l l
							S N t
							C l l t p h 8 l m S l 14 d 1 18
Ap 127	SS	11 17 40	1 0 5	47 10	W W	35 ± 2	N b t l l l t I A 180 23f
Ap 128	GN	13 24 8 22 0 0 20 8 16 16 15	1 5 2 1 5 0 5 14 1 1 2 0 5	25 5 48 72 47 40 13 44 55 57 74 5	E I W W W W W W W W	30 50 ± 20 65 ± 55 ± 60 ± 30 ± 20 ± 2 15	Sl t t d l t h B d w t d
Ap 129	SS	8 54 58 7 50 48 45 54 54 32 32 29 23 18 15 11	2 4 2 2 2 0 5 3 1 3 1	50 19 E q t 2 8 47 70 81 37 5 35 16 9 19 41 58	E I E I E F I I W W W W W W W	0 15 30 10 40 ± 30 ± 30 ± 65 60 ± 50 ± 30 ± 20 10 60 ± 35 ± 35	O C t d b y O t k D t l d S l t t l w d 80 O 5 b d O O p l t p h 8 54m

D t d b	H I S T	B	L t t l		L b	H l t	R m k
			N t	S utl			
1907							
Ap 130	GN	14 4 8 6 50 14 50 51 9 17	2 2 1 1 7 15	35     10 20 13 57	E I F L W W W W W W	25 20 20 1 45 30 0 1 0 3 30	D t l l       B t l t l t + 34 W C C i h t i h 9 J 8
My 1	SS	5 51 15 15 80 9 1 15 t	15 05   2 4	35 10 9  77 41  4 58	L L I I W W W W	35 90 10 60 10 2 5	C n t i t b d 120 l gl C D t h d O l m l y t l l b t l t - 58 E V y f t N w t t p C p l t g i h 9 l m
My 2	GN	h 7 55 0 0 8 12 3 3 9 0 0 9 5 1 9 3 9 0 0 0	2 1 1 1 1 0 1 0 5 15 2 1 3 5 3 05 1 1 1 1	53 37 18 1  29 68 715 70 17 11 325 4  15 5 14 52 51 8	I I I I I I I I W W W W W W W W W W W W	10 80 110 110 20 2 20 10 0 30 60 30 25 1 10 90 15 15	65 C 11 l l l t d by b o l l t 140 l gl C D t l d t d by t k 5 l b C S l t t d C C t d by t l t t l C C i l t i l 8 J 8
My 3	SS	8 5 47 10  30 21 28 0 19 18 16 15 9 1 23 1 1 0 9 54 58	15    1 2 05 0 1 1 1 1 2 2 05 05 1 1	51  37 20  12 56 60 80 815 84 7 09 40 35  11 21 34 54 585	E F J  I I E E F W W W W W W W W W W W W	1 10 315 120 25 5 20 15 10 15 75 30 25 60 10 15 10 15	A l t O t k p o d t l f d t l S l t t k y L l b t 75 w y f m i m l 290 hgl C I p t m t l l B glt F t C O l k 50 n O C p h t t p h 8 J 8 m
My 4	GN	8 31 30 7	3 1 2	515 31  125	E I E	60 20 15	3 C

D t a b	H IS 1	B	t l		L b	H l t	P l
			N th	S th			
1907							
M y 4 — td	GN	8 21		8 79	I W	10 90 ±	D t l d b l t t l 60 l g l d y f t
		21	05	78	W	40	C V y f t C
		20	05	74	W	15	
		20	4	70	W	50	F l t l 60 l l d y f t C
			15	40	W	90	D t l l
		52	2	37	W	70	\ w l t b
		50	3	11	W	15	
		48	1		W	11	l 3 O } N l y t d l y C t k
		42	4	15	W	90	D t l l
			25		W	15	
		40	1	31	W	30	
			2	36	W	10	
							C l l t l l 8 l 94
M y 5	SS	9 9		2	I	10 ±	k t
		8 59		14	I	3	B d t t l
		8		8	E	3	
		56	05	28	D	0	
		4	2	31	I	25	D b l
		54	15	44	D	10	
		54	1	46	L	30	
		48	1	71	W	25 ±	V y f t
		9 40	15	1	W	80 ±	I t t l l t p f t
		40	1	7	W	1 ±	I t t l l t p
		3	1	20	W	60 ±	B g l t } C t l
		37	6	28	W	60 ±	I t t l } C t l
							g l
M y 6	GN	9 0	4	2	I	80	0 C
		8 57		05	I	15	
		55	1	5	I	90	
		48	15	14	L	10	I p t t h t }
							C t d b y C t k
		4	0	15	L	100	B d t t p }
		41	0	27	I	70	
		40		31	I	20	
		38	2	39	L	35	M t t l l t p
		38	3	43	F	60	C t d t b
		36	1	40	F	30	
		3	1	5	I	20	D l l
		9 31		7	W	60 ±	D d t t b l 60 O
		8		13	W	3	
		7	15		W	30	
		5	2	19	W	4	O t l l y C l
		5	2	28	W	60	
		5	2	31	W	10	M t t l l t l t t l
							C l l t p h 8 l 92
M y 7	SS	9 40	05	51	I	60 ±	S l t t w d
		37	1	45	L	25 ±	V y f t
		35	5	2 5	D	40 ±	J h l l n t O
		30	15	8	I	20	
		29	1	30	I	15	
		27	3	12 5	I	60	C t C
		2	05	56	E	10	
		20	15	76	W	10	
		56	2	52 5	W	2 ±	0 O
		55	0	32	W	30 ±	
		10 54	2	8	W	30	C } O t d b y O t l t t p
		9 47	2	27	W	30	
		17	15	1	W	30	C p h t p h l l 4
M y 8	GN	9 23	3	54 5	F	60 ±	
		18	3	33	E	0	O l y l b d O
		16	1	28	E	1	
		14	2	23	I	20	
		12	25	18	E	30	

D t a b	H IS I	B	I t t d		L b	II l t	R k
			N t l	S h			
1907							
M y 8 — ntd	CN	12	2	14	1	20	
		12	2	11	1	0	
		9	6	Fq t	F	(±)	F C t k f w t l w l f m t
		0	15	8	F	20	
		0	5	145	t	20	
		0	2	2	L	3	A t l f n t p l y m t t l l t p m t
		8	6	30	1	80	O <sup>n</sup> t d t t l l t l y C t k
		51	0	465	1	1	} O C
		1	15	50	1	30	
		0	1	14	F	30	
		0	1	66	F	1	
		C	1	68	F	45	A l l l d t l
		50	1	70	F	10	
		50	0	78	F	10	
		48	1	87	W		
		10	1	80	W	100	D t l d
		38		45	W	70	D t l l f l m l
		9		63	W	60	A f t t k f d t l d f t l t
		41	1	555	W	6	
							l t — (1 W F p m t l m l t l t
							1 W
		36	5	32	W	40	
		36	2	20	W	10	
		31	3	1	W	10	
		30	2		W		
		21	5	1	W	2	
		28		0	W	20	
							O l l t g l l 91
M y 9	SS	3		72	F	10	
		31		65	F	2	
		11	4	55	1	45	D t l l
		2	4	30	L	10	
		1	5		1	40	
		9	3	0	F	2	
		8	05	48	1	30	
		51	0	50	F	5	
				6	W	10	
		11	1	47	W	40	C V y f t
		11	05	40	W	20	
		40	2	31	W	0	
		9	2		W	1	
		35	1	415	W	20	
				8	V		C p l t l l l l 39
M y 10	GN	20	1	5	F	60	
		15	3	8	F	100	
			3	8	F	3	
				30	E	40	
		14		13	F	80	
		20			1	90	A C t l 90 w y f l l
		10	1		1	60	A O t l p l f t h t l f l t
							— 43 F
		25		79	W	4	A w y f m l m b
		33	1	455	W	30	
			1	43	W	40	
				39	W	3	D t l d
		31	25	365	N	3	
		30	05	11	W	10	
		9		7	W	5	H n h b l w y t l
				5	W	2	
		26	4	30	W	60	
		24	15	41	V	20	
							O p l t p h l 0
M y 11	SS	8	6	59	E	210	In C 270 t 8 20 l t l y h d t
						±	11 l m
		35	05	49	F	15	
		32	35	37	F	45	B g l t t F M g l y b g h t
							t b

D t a b	H I S T	B	L t t d		I b	H ght	R m k
			N tl	S th			
1907							
My 11	SS	8 29	1	16	E	0	
— 22		5			E	30	
		25	1	7	L	5	T p b h b t l d t l m t t h l t
				11			d t h t p m
		21	2	14	L	25	
		0	05	3	E	10	
			1	415	E	5	T p b l t l w d
		14	25	61	D	2	
				68	I	70	F t A t l t l f t t 70
		8		78	L	0 ±	F t A l d l t w y f m l b d l t g
							t l w l
		4	15	51	W	1	
		3		8	W	30	S l t t l w d
		2	1	75 5	W	15	
		1		68	W	30	D t h l
		9		60	W	1	
		4		1	W	0	D t l l
		2		45	W	60	D t d f l t — 40 W
		2	05	48	W	20	
		8 56	15	7	W	20	S l t P t l y b l t l t l l
		54			W	10	
		52	5	15	W	60 ±	
		49	3	27	W	1	C p h t p h b s o d l l l m
My 12	GN	8 3	1	37	E	20	
				32	E	10	
		30		4	E	30	
		30	1	21	E	15	
		29	05	15	L	10	S l w d l l m t t l O
		27			D	10	
		27	15	15	D	10	
		6		19	E	30	
		25		8	I	30	
		25	3	44	D	80 & 40	D b l
		20	25	48	D	30	
		0	1	71	F	1	
		19		7	E	60	D t l d
		19		8	E	10	
		7		87	D	0	
		6	3	80	W	60	D t l d
		0	3	76	W	80	
		49		60 5	W	15 & 30	
			15	43	W	30	
		46	3	1	W	80	V y b g k t O
		43	8	85	W	30	
		10	0	1	W	40	
					W	1	
			15	31 5	W	10	
				49	W	20	
				51	W		
		38	2	4	W	15	N p t n C t l t l p h h w d p l
My 13	GN	8 48	0	64			C p h t l h 8 12 18 47
		47	2	5			
		46	3	38 5	F	10	D b l
		45	05	30	F	20	
		45	05	2	I	0	
		43	15	16	L	20	
		42	15	13	F	15	
		41	3	8	E	10	
			1		F	30	T l l m l t g t h
			1	5	E	0	
					E	15	
				2	F	1	
				15	E	20	
			05	49	D	0	
			15	54	D	20	
			05	68	E	15	
				75	E	65	D t h d

D t l l	H l s t	B	L t l		L b	H g l t	R m k
			V t h	S t l			
1907	M						
M y 13 — t l	( N	8 33 32 31 30	05  05	78 86 88 75	E E W W	45 0  90	C l t — 1 d l d m t l b g
		9 7 5	1 1 3	43 2 15	W W W	3 3 10	
		0 5 4 5 1	7 3 4 1	10 3 39 19 73	W W W W W	4 30 30 30 60	P tly l t h d f w l m b C p l t g i h 8 d 8 l 2
M y 14	G N	9 5 0 19 15 3 30 29 29 7 7	2  15 2  2 3 2 1	41  6 86 77 73 83 45 12 105 37 49 51	1 I W W W W W W W W	90 8 30 30 10 1 35 20 45 80 1 15	80 n O [ w C d l l t l } O t l by C t h D t l l D b t l g 90 O C h t i h 8 30 d 8 41
M y 1	( N	8 14 14 9 3 3 14 0 8 8 ( 51 14 0 0 9 47 46 4 40 8 14 14 9 39 8 14	0 0 1 1  1 3 05 05 2 3 05 ( 1 3  2  1	19 14 26 23 18  0 75 14 47 51 83 74 88 81 6 605 21 115 245 31 33 37 51	I I L E  F I I I I I I W W W W W W W W W W	10 10 30 80 10 20 30 1 15 10 10 100 1 60 7 1 30 40 Δ 4 3 4 10 25 ± 0 15 35 15 & 25 25 10 2 ± 25 15 20 11 10 5 0 8	C Tw C t k t d b th d f o n t l t l S m t l by t k b u t l g C V y f t O C C d t h l C d O O h t i l 8 l 14 nd 8 l 29 D b l 40 O M nt O O p m t n d t l t — 2 F A O t k f t p m t l b n t l t — 14 l C O N t l g l O C O A C t l t l m b t l t — 77 W
M y 16	G N	10 12 11 10 9 11 0 10 8 11 0 10 5 11 0 10 8	15 7 15 5 2 1    15	78 85 2       20 31 1 46 63 88 80	L I I L E D E I P L W	35 15 & 25 25 10 2 ± 25 15 20 20 35	



D t nd b	H I S T	B	L t t d		L m b	H h t	R m k
			N t l	S t h			
190							
M y 16 — 12	GN	10 0 0 0 20 20 18	1 1 2 4	70 6 62 58 13	W W W W W	15 6 60 1 40 45	A O t k p d tw d f mtl t p D d 2 b l n C 130 C } Th t t tl f m d 100 ± C } lyd l g l 110 hgh dd t l d f m l b t b th d t l d 4 m
		18 15 15 15 15 13	0 5 1 2 1 5	24 30 36 66 75	W W W W W	45 30 30 4 16 ± 0	D t l l } C t d by ( l k ( ph t g pl 11 0
M y 17	GN	8 36 35 3 34 32  31 31 30  25 2 23  20 45 44 20	1 2 0 5 1 1 3  1 1  0 5 1 5  0 5 7 4 8	68 5 8 56 53 30 25 5 20   88 84 81 7  67 5 21 10  8	L F L E L L F E I E  W W W W  W W W W	15 4 15 1 4 2 1 3 20 4 60  30 30 30 60  30 3 30 30 40 & 15 10	D t l l Sl tl d B g l t D t l d 3 b d hyd g d b t 7 C D t l d  D t l d C t l t tl l t } Oh g g b, C t k b t C C ph t pl 81 20
M y 18	GN	8 50 0 45 45  89 39 30 28 59 57 56 29	1 5 2 0 5   1 1 5 4 1 5 4	60 5 48 44 18 9  4 5 23 5 45 40 52 63	F F F E I L  I E L W W W W W	45 4 30 15 1 30  10 30 05 30 40 20 30 10	{ ( t d D t l d A t l g f w tl d f th } t l ly b ght P m pt C l g t l y d D } l l d t l b l D b b b b l C C ph t g ph 8h 29
M y 19	GN	10 38 88 39 30 36  35 35 35 31	1 1 0 5   0 5 1 1 1	61 58 22 18 5  8 10 18 27 30	E E E E E  E E E E E	15 4 10 10 6  1 20 45 20 80	B l t t p Γ t D t h d b tl hyl g l 0 i b d C

D t d b	H I S l	B	L t t l		L b	H l t	R m l
			N t h	S t l			
1907							
My 19 — t d	GN	10 31		93	F	60	D t l
		30	15	1	I	0	
		30	1	8	I	30	S l t t d t l l t
		(	15	6)	I	45	B d t p
		2	0	77	I	1	
		0	3	8	W	30	
		5	1	88	W	30	C
			1	44	W	30	B d t t l
			1	9)	W	20	D
			1	36	W	20	
		0	1	0	W	3	
		0	5	1)	W	20	} C t (
		47	4	1)	W	30	
		16	(	7	W	3	} D
		11	0	32	W	15	
		14		37	W	30	
		13	15	11	W	10	
		1		0	W	15	A C t l i m t t l b t l t + 3 W
		1		71	W	10	(
		30		8	W	1	N t h g l O
		1		88		10	O V y F t
							C l l t i t 10 l m d 10 l 9
My 20	C N	5 3	1	(	I	15	( T l
			3	1 l t	I	30 ±	
				(	I	0	
		J 0	C	15	F	20	
		8 4	0	20	P	0 ±	A t l p l l t l m l
		54		31	L	20 ±	A ( t l l t l t l g l t h t p
		51	1	34	I	3	D t l d } d m t t l l m t l t
			4	3)	I	30	— O I
			1	58	I	60	
		1	2	73	F	10 ±	O
		0		84	I	40	S N t
		39		88		0	D t l l
		9 18	1	57	W	0 ±	C
		16	0	4	W	1	B l t t p
		15	1	39	W	10	D
		11	1	19	W	35	S l t t l t h l t
		10	12		W	30	
		6	1	33	W	4 50	A g i f l l
		(	1	37	W	1	
			15	40	W	0	} C t l t t l l l y ( t l
		3		46	W	70	
		3		4)	W	1	
					W	15	( p l t g p l 8 l 39 i j l 5 m
My 21	GN		7	26	F	30 d 0	
			1	13	I	10	
				1	L	30	l l ( t l b t l l n t
		8 47	25	2)5	I	45	l l f 6
		4		38	I	70 120	S N t
						d 45	
		3	2	C	F	60	
		32	0	71	I	50	
		30		85	W	20	l l l y t t h t p m u
		30	1	81	W	10	
		9 4		57	W	15	
			1	41	W	5	
		0	7	8 5	W	20 d 15	
		0	0	3	W	1	
		8 55	10	3	W	90	A p f t h p m
		55		53	W	1	
		5	05	5	W	1	C l h t g r p h 8 l 1 18 l 38

D t n d b	H I S T	B	L t t d		I b	H l t	R
			V t l	S t l			
907							
M y 2 G N	8 40		81 68 5 40 34 5 31 17 5		E E E E E L E F F E W W W W W W W W W W	1 10 10 5 20 15 15 0 5 15 60 10 15 35 30 1 0 30 15 30	C C O
M 23 S S	8 47 6 6 34 J 13 10 4 3 1 0 9 55	0    0 5 1 5 1 3 5	41 5     8 18 33 6	40 56 68 87 48 0	L L L F W W W W W W W	20 4 80 10 30 25 25 25 15 2 30	C C D t h l V y t t J O C O l p l d t l t t M t C D t l d O l l g p l 8 l 20m d 8 l 43m
M y 4 G V	9 45 42 41 16 39 38 37 37 37 35  16 30 16 9 1 0 8 6 56 49 49 48	4 2  2 0 5 1 1 1  1 1 5 1 5 1 5 1 5 1 5 1 5 0 5	42 35 26        7 15 33 5 30 57	4 8 30 47 1 5 53 59  70 63 58 45 43  1 53 88 34 17 5 12 6	J E E L F L F L F F W W W W W W W W W W	35 20 35 10 10 5 0 60 7 7 30 30 40 0 5 45 75 5 15 40	C Bnght F t f l m t l 40 C D d D d 65 n C D b l O f t l d t l d f m t h l m b C d f t h t h C C 60 C } M t t t p C l t p l 8 l 10 d 8 h 29m P t d t t l M t l l O t d t b t t h l t S t 80 C S N t C S N t D b l
M y 25 S S	9 19 17  8 3 50 40 39 40 9 40 39 8 49 9 3 9	3 6 6 2 4 1 5  1 3 1 5	61 4 28 12     15 5	1 45 5 53 88 34 17 5 12 6	E F E E E L L W W W W W W W	15 2 50 5 10 40 10 20 10 5 20 20 20 20	

D t l b	H ISL	B	I t t l		L l	H ht	R l
			N tl	S tl			
180							
M y 25 — ntd	SS	9 8 28 8 21	375 33 405 13 1 9		W W W W W W	10 10 10 10 10 10	C l l t pl 8l 49 JI 0m 0h 7m d 10l d
M y 6	SS	8 53 18 4 38 10 8 35 34 31 21 28 10 28 11 10 5 2 0 8 53 7	0 15 4 1 1 0 15 1 1 4 0 1 1 1 7 15 12 1 5	8 4 30 1 9 2 1 17 19 225 13 48 5 75 47 81 0 7 15 12 1 5	E E P P L L L L L L L W W W W W W W W W	10 2 4 2 6 15 1 50 6 10 10 37 80± 5 10 1 10 10 0± 10 27	F t D M t l l t b C C y f l ml B l l t b C F t M t l l C l l t 5 h 8l 10m nd 8h 14
M y 7	SS	8 1 51 19 47 41 39 34 28 4 0 10 9 7 1 5 3 0 8 6	0 1 4 13 10 4 05 1 2 1 24 37 1	49 17 135 31 12 185 39 48 18 47 35 295 24 13 2 24 37 1	J J J J F F F W W W W W W W W W W	(0± 10 10 10 10 50 nd 30 25 150 30 3 0 25 10 0 25 45 0 10 85 15	M t l l t b 1 p m t l m b 5 n t l t — G l F C S l t t w d D A b g l t C l h t g l l 8l 10 18l 35
M y 8	GN	8 34 11 3) 30 30 8 28 55 54 51 50 48 44 40	7 05 25 3 15 2 05 4 1 1 1 4 05 15 5	3 7 15 23 27 6 73 77 85 66 48 26 18 11 5 05	I E I L I I L F L W W W W W W W W	50 20± 30 30 20 1 0 30 65 15 40 60 70 75 45 60±	C S t t l w l D S l n d D t h d } M t l t p A b t 5 b d t t p 1 p m t t h l t p m n P t d t t p A C t l t th with t l l t l

D t and b	H 1ST	B	L t t d		L b	H g l t	R i
			N t l	S t l			
1J07							
M y 28 — t d	G V	11 36 36	2 15 3	38 4 57	W W W	45 25 2	C p h t p l 111 33 d 11h 0
M y 29	S S	8 8 58 55	4	17 34 8	F F L	20 70	( 60 (
		50 48 46 46 40 43 41 37 34 30 9 31 30 8 25 5 22 1 13 11 8 7 6		16 7	E L F E I L E I W W W W W W W W W W W W W	10 40 15 10 20 10 10 7 20 0 0 15 1 4 0 30 2 35 15 15 15 5 10	Fl t l f l t 20 L A l l b 60 l h f t t t l t + 3 E
			05 15 0 3 15 1 0 1 05 1	6 75 1 2 44 645 55 76 1 49 30 22 6			D t l l M t l l S l t t d t l l t M t l l t b 60 C D t l d D t h l } C t l t t l l y d d t h l t D t l d } C t l b y ( t l t t p } C d b C t l C l l t p l 81 8 181 27
y 30	G N	8 5 5 0 40 40 36 32 30 29 7	1 8 5 2 1 0 5 1 1 1 3 2	365 31 2 12 5	L I I I L E E F L W V W W W W W W W W W W W	5 50± 8± 20 15 20 30 d 0 70± 60± 0 65 3 40± 30 3 10 60± 45 15± 10 0	} M t t t p l t } N a l l y t l l d b y C a 3 d t t p d l t t h l S N t l D l l C O I t D t h d l d O S N t 2 A p f t h p m C D b l C } O t l t t l O p h t p l 81 8 19m d 8 44m
M y 31	S S	8 36 3 29 9 8 25 9 15 13 1 8 58	6 2 0 1 1 3 1 1 1 05	10 18 53 61 81 77 5 55 44 4 26	L I L F W W W W W W W W W W W	10 d 25 25 30 20 1± 20 20 1 20 20 70 20	O l y h p l l y f t 10 C T l t d b y O t k I t S l t t h d

13

D t l b	I I S T	B	L t t d		L m b	H h t	R m k
			N h	S t h			
190							
J 4	C N	8 51		20	W	25	
—	td	51		16	W	25	
		1		15	W	15	O p m 4 h l d t t h l t
		50	3		W	30	C
		48	3		W	25	
J 5	S M	10 37	65 5		E	10	O l h t p h 8 24 10 58
		34	56		E	10	
		34	52		E	5	
		34	49		L	10	
		9 44	6	3	E	30	
		31	4		L	15	
		10 9	15	8	L	15	
		9 28	15	12	F	25 ±	M t t h t
		10 25	05	45	E	40	S l t t l w d
		11 44	15	72	W	30	
		10 21	2	48	W	25	
		8 8		34	W	20	
		38		28	W	15	C
		10 15	05	1	W	20	O
		11 7	1		W	10	
Jun 6	G N	9 3	Eq t		E	40	C p h t p l 8 38m
		28		11	E	30	
		10 2		10	W	0	
		1		2	W	30	
J 7	S S		57 5		E	25 ±	W t l l
		8 36	34		E	25 ±	V y f t
			20		E	20	C
		8 30	18	18 5	E	0	S l d
					E	35 ±	V y b g l t C d p l l t l t b l d t
		9 5		1	P	5	l t t h t T l l m h d d
		0		33	E	10	pp d t 8
		8 58		42	D	20	
		36	05	53	D	15	
			5	63 5	W	30	O
				54	W	10	90 O
				47	W	0	
				18	W	10	
			10		W	15 ±	
			28 5		W	20 ±	
Jun 8	G N	9 22	57		I	55	S
		22	54		L	30	O l h t p h 8 1 30
		2	46 5		D	20	} O t d t b
		0	42 5		D	15	
		17	35		D	4	P t d t t p
		16	23		E	15	
		8 5	6		E	15	
		9 42		6	E	40	C
		42		19	L	15	
		10		20 5	L	15	
		37	15	32 5	E	20	
		10		35	L	30	S l t t w d t l l t
		8	8	61	W	70 ±	D b l f l m t l M t O
		8	15	12	W	25	
		8			W	5	W t t 5 h 18
		18	05	8	W	20	
		56	15	28	W	45 ±	80 t 9 30
		55	15	34	W	35	
				48	W	10	
							C p h t 1 h 8 5 5 h 23 d 9 h 38

D t l b	H IS F	B	L t t d		L mb	H ght	R m l
			N th	S th			
1807	M						
Ju 9	SM	9 8	4	55	L	60	A l n t g F t
		8 43		19	E	20 ±	
		98	2		D	10	
		34		27	E	20	
		33	0 5	33 5	E	15	
				64	W	40 ±	
				55	W	25 ±	
		9 30	0	49	W	15	
		28	1	42	W	15	
		20	1 5	29 5	W	20	
Ju 14	SS	14 0	1 5	56	E	80	S l t n t h w d
		15 15	1	13	E	85	
			1	19	D	20 ±	
			1	86	W	20	
			1	10	W	20	
Ju 16	SM	10 32	4	59	D	30	O l d v w d f w l t b l  S l t t w d D  M t t t p  S g b d  C O O A b t 70 l g h d l n t t w l n O O C C W t l b d C l t g p l 13 44
		0	0 5	26	L	25	
		20	1 5	24	E	25	
		1)	2	19	E	20	
		17	2		F	10	
		18		10	E	30	
		15		15 5	D	20	
		9 25		18	F	10	
		11 0		28	W	35	
		10 54	1 5	60	W	50	
		3	2 5	8 5	W	60	
		51	3	24	W	60	
		17	1	18 5	W	40	
		45	2	10	W	15	
		10	1 5	6	W	15	
J n 17	SS	13 44	4	33	I	2	C O O A b t 70 l g h d l n t t w l n O O C C W t l b d C l t g p l 13 44
		14	4		L	9	
		15 15	1	12	D	1	
		15	0	21	F	35	
		44		22	E	20	
		44	2	30	E	60	
		44	1 5	51	W	30	
Jun 20	SM	9 17		75	F	20 ±	A l l l D n b l 30 O D B d t t l M t l l t b D D 3168 b b l i d b b l t M t t l t p m M t l l D D i 3168 l l l b l 49211 b g h t D l l o p t d b t h w y } O l l t t p d b t 4 l d D M t t t p N w t t l 25 C D O l k O n t d t t h t b y O t k 30 O O n t d t t l n t C t g t l w 50 n O
		45	1 5	67	I	20 & 15	
		38	1	58	L	4	
		30	1 5	54	I	4	
		30	0	30	F	20	
		28		0 5	E	15	
		23	0	17	E	5	
		20	4	9	F	70	
		56	8		E	30 & 1	
		2		8	F	10	
		50		35	I	60	
				41			
		47		4 5	F	70	
		45	0	52	F	20	
		44	1	61 5	F	20	
		41	1 5	64 5	I	20	
		10 30	8	55	W	60	
		21		46	W	7	
		18	0 5	44	W	80	
		14	4	8	W	50	
		1	4	12 5	W	60	



D t d b	H n r I S T	B	L t t d		L m b	H g h t	R l
			V t h	S t h			
1907	M						
J 20 SM	10 10	05		6	W	60	30 C Sl t tw l t p t l n k t l t + 2 W n C
	8	15	11		W	20	
	2		22		W	10	
	9 8	8	39		W	60	4 b d d 30 h g l C
	58	2	47		W	80	
	50		50		W	50	C p l t g p h 8 l 58
J 1 S S	8 45	05	80 5		E	2	
	42		44 5		E	25	
	40	25	29 5		E	40	
	37	1		05	E	10	
	36			10	E	25	
	28			20	E	30 ±	A t k 3 l g p l l t l l A t 8 l 35 t w t l t l
	26	15		48	E	25	
	23	1		56	E	25	F t
	22			64	E	25	
	20			69 5	E	10	
	9 0			87	E	10	
	8 59			76	W	15	
	58	2		55	W	15	30 C
	13	15		44 5	W	40	C
	13			38	W	1	C
	56	05		31	W	20	
	55	15		14	W	10	
	13	05	25		W	30	C
	51	2	38		W	25	C p m 9 b d
	49	1	44 5		W	40	C p h t g p h 8 l 13 m
	18		51		W	40	C
J 22 S S	9 55	8	45		E	50	P t d t t p 35 C
	49	25	80 5		E	0	60 C
	42			48	E	25	
	40	4		58	E	45	D u b l 60 n C
	36	05		78	E	20	
	36	05		80	E	15	
	8 32			44 5	W	30	C
	10 J			87	W	10	
	9			8	W	10	
	7	15		21 5	W	10	Oh m p h l l l l g h t f o m l t 8 t - 14 W
	8		1		W	10	
	0	4	52		W	90 ±	P t d t t p C C p h t g p h 8 l 32 d 8 h 49
J 23 G N	9 7	1	39 5		F	45 ±	P t d t t l
		1	22		W	15	O l d y
J 24 S S	9 4	05	50		E	15	
	3		46		E	20	
	0		31		E	25	l d f t
	8 57			7	E	10	
	56			10	E	10	
	55	1		21	F	20	
	53	2		38	E	10	D b l
	52	3		8	E	30	D
	50	15		57	E	15	140 C
	49			63 5	E	50 ±	D
	48			65	E	25	} F t h y d g
	17			68	E	140	C
	4			80	E	25	
	46			82	E	20	
	9 25	2		84	E	20	M t t t p
	22	05		78	W	10	
				39 5	W	0	
				32 5	W	105	A t k 2 l g p l l t l m b

[illegible]

D t d b	H I S T	E	L t t d		L m b	H g l	R m l
			N t h	S t h			
1907							
J 2 ( \	9 0		9		W	50	A d t l l t l G l B d t t l O p h t g l h S l 9 n d S l 37
— t d	8 5	15	62		W	60	
J 8 S M	8	1	71		E	10	
	5	1	50		E	10	
	10 10		25		E	10	
	9	25	18		E	20	
	5	1			E	35	
	8 8	25		6	E	35	] A O t l l t h g l t l l t ] l m b t l t 3 E
	54	25		10	E	3	
	9 50	05		38	E	20	
	50	05		39 5	E	10	
	8 37			77	E	45	O
	47	25		79 5	E	15	
	37	05		44	W	10	O
	37			40 5	W	30	O D t l d
	37			21	W	15	O
	9 20	2		8	W	20	O
	37	5	10 5		W	25	O
	37	8	46		W	30	O
	37	8	60		W	30	O
	10 35	0	1		W	15	N t h g h C O b d t h g l t l l l 10 l 0 S g l O p l t l h 8 l 37
Jun G N			50		E	10	
		2	15		E	15	
	16 5	05	6		E	15	
	9 0	2		8 5	E	35	
	0	15		7	E	35	
	0	15		10 5	E	35	
	11 8	18		25	E	30 40 &	
						0	
	3	05		9	E	40	I t
	2	1		85 5	W	15	
	2	15		30 5	W	15	
	0			17	W	20	
			E q t		W	1	
	10 59	05	19		W	15	D t h d
	55	2	26		W	45	A O t m f w w t d f t l t p
	55	15	60		W	45	
			66		W	35	O p l t p h 8 l r 7

## NOTES

1907

January

- 8 Lat - 12 to - 17 E Very bright h displaced about 1A both ways at Lats 13 and 17 Metallic Bright lines —4922<sup>2</sup> (faint) 4924 1 5016 3 5018 5 b b b b 5234 8 5269 2 5276 2 5283 8 (5283 8 was bright on the red side and dark on the violet side) 5316 8 D D D was displaced both ways at Lat - 13 L Height at the tallest place was about 90 at 8<sup>h</sup> 58<sup>m</sup> but the prominences at Lats - 13 and - 17 had coalesced
- 14 Lat + 12 E A streak connects the base of this prominence with the top of the last There is a faint extension of the prominence for 5 further east
- Lat - 41 E A very bright cloud with its base 80 away from limb It is connected to the limb by two streaks the southern one brighter and meeting the limb at Lat - 41 E and the eastern one fainter and meeting the limb at Lat - 34 E
- Lats - 19 - 3 + 1 + 11 W Chromosphere elevated continuously from Lat - 14 W to Lat + 16 W A streak parallel to limb and 70 high at Lat - 13 W
- 19 Lat - 13 W Mg Na and Fe lines bright O slightly displaced bodily to violet at Lat - 14 W

February

- 2 Lat + 16 5 W Very bright metallic D displaced 1A and F 1 5A to red at Lat + 14 W Chromosphere slightly elevated from this prominence as far as the equator
- 4 Lat - 12 and - 16 E Very bright metallic Rapidly changing Surmounted by a large faint fragmentary prominence 210 high and extending from the equator to Lat - 20 E Na Mg Fe lines and 66 7 strong at Lat - 12 and - 15 E Prominence forms well visible in Na and Mg O slightly displaced both ways at Lats - 12 and - 15 D Form completely changed at 9<sup>h</sup> 17
- 8 Lat + 37 W A cloud with its base 2 away from limb The northern end of the base is connected to the last prominence by a Ca streak Another broken Ca streak proceeds westwards from it as far as Lat + 18 W The Ca cloud was 80 high and 135 away from limb at 8<sup>h</sup> 42<sup>m</sup> and 75 high and 125 away from limb at 9<sup>h</sup> 53
- 10 Lat + 10 W Bright metallic Na and M and Fe lines bright A cloud 60 high was floating over it with its base about 120 away from limb
- 14 Lat - 18 W Brilliant Metallic Bright lines —4922 4 4924 1 4934 2 5016 3 5018 6 5031 2 b b b b 5197 8 5204 8 5206 2 5208 7 5234 8 5276 2 5284 2 5316 8 5363 0 D D and 6677 The prominence was rapidly changing
- 18 Lats - 20 - 14 - 7 + 1 W Metallic the bright lines were strongest at Lat - 14 W At 8<sup>h</sup> 50 to 9<sup>h</sup> 50 the lines observed were —

49 2 0	5233 1
49 4 1	5234 8
4934 2	5237 5
4957 8	5240 0
4973 6	5269 6
5012 2	5270 5
5016 3 (faint but broad)	5276 2
5018 6	5283 8
5031 2	5310 8
5171 8	5325 7
b	5328 2
b <sup>h</sup>	5363 0
b <sup>i</sup>	5371 8
b	5400 7
5188 9 (base of the double line)	5406 0
5195 6	5412 5
519 8	429 9
5204 8	434 7
5206 2	5447 1
5208	5455 8
5216 4	5535 1

1907

February  
—contd

- 18 Prominence form easily visible in b b b and b but rapidly changing O D and the b group slightly displaced both ways at Lats — 14 — 16 5 and — 20 W Image very unsteady towards the end of the observation
- 19 Lat — 1 W Rapidly changing eruptive metallic intensely bright almost white in the centre Spikelike jets to west of prominence 10 high only in Ca
- 20 Lat — 20 E Top extends as far as Lat — 7 E in hydrogen and as far as Lat — 4 in Ca The stem at Lat — 18 E was metallic The whole was visible in Na and Mg
- 22 Lat — 65 and — 55 W Ca In hydrogen there were a few prominences seen about the place when beginning the observation but they disappeared before coming round the circle to the same place again
- 23 Lat + 26 E Metallic Bright lines observed were —4922 4 4924 1 5016 3 b b b b D D 6677 the whole prominence being visible in b b b b D D D and F were displaced to red at several places 3A in H and about 2A in D to violet at Lat + 24 E
- 26 Lat + 20 W Metallic Greater part of prominence well visible in Na and Mg In Ca there was a discontinuous streak 130 high slanting southwards from the top The streak was faint at 8<sup>h</sup> 19<sup>m</sup> and strong at 8<sup>h</sup> 44<sup>m</sup>

March

- 2 Lat + 21 E A detached Ca cloud connects with prominences at Lats + 24 5 and + 21 E
- 4 Lat — 21 E Eruptive F displaced 1A to red at several places displaced to violet on nearly the whole prominence greatest amount 4A at the base D displaced 3A to violet at the base Bright lines observed —

492 4	5206 2
4924 1	5208 7
4934 2	5226 9 ?
5016 3 (diffus d)	5227 2
5018 0	5234 8
b	5269 7
b <sup>1</sup>	5276 2
b	5283 8
b	5316 8
5189 0	5363 058 o }
5197 8	5362 944 }
5204 8	Im g unsteady

- 7 Lat + 60 W Rapidly changing 80 high at 9<sup>h</sup> 22<sup>m</sup> Not visible in Ca at 8<sup>h</sup> 30<sup>m</sup> but strong and 30 high at 9<sup>h</sup> 10<sup>m</sup>
- 14 Lat + 63 E Ca Two very tall streaks detached from limb with a broad patch extending to Lat + 50 E at the top of one of them Probably eruptive Absent in Ca photographs taken at 3<sup>h</sup> 54<sup>m</sup> and 10<sup>h</sup> 35
- 29 Lat + 1 5 E Intensely bright eruptive It had the distinct appearance of being made up of innumerable spikes the one at Lat + 15 E showing a slight displacement to red in C Rapidly changing The two ends of the prominence were very bright in C and visible in b b b D and D

April

- 12 Lat + 18 W Metallic There was no prominence at this position at 8<sup>h</sup> 55<sup>m</sup> but C was slightly displaced to red 30 high and slanting westwards at 8<sup>h</sup> 58<sup>m</sup> Very rapidly changing
- 25 Ca flocculi photographs showed several dark streaks inside the disc but near the limb from Lat + 9 to + 40 L They probably correspond to the long group of prominences observed on the three previous days
- 26 Lat + 1 E Top broad and slants northwards It meets limb again at Lat + 15 E in Ca 50 only in Ca Na Mg and Fe lines bright at base There was a dark marking on the Ca flocculi photographs from Lat + 9 to + 40 E corresponding to the streaks noted on the previous day

1907

- May 20 Lat — 84 E Faint Nothing here in the Ca photographs at 8<sup>h</sup> 39<sup>m</sup> and 9<sup>h</sup> 5<sup>m</sup> A Ca streak from this position passes through the top of the next prominence as far as Lat — 86 W
- 21 Lat — 38 E A cloud about 16 long connected to limb at Lat — 43 E It is also connected by delicate Ca filaments to the last and the next prominences Connected by delicate filaments at 12<sup>h</sup> in hydrogen
- 25 Lat — 88 E Rapidly changing Very bright 25 high at 8<sup>h</sup> 41<sup>m</sup> and 40 at 8<sup>h</sup> 44<sup>m</sup> Becoming fainter at 8<sup>h</sup> 45<sup>m</sup> It became a faint slanting streak at 8<sup>h</sup> 46<sup>m</sup>
- Lat + 15 W A cloud away from limb The Ca prominence was 6 broad connected to limb from Lat + 3 to + 9 W and slanting northwards The Ca prominence was gradually growing in height the total height being 130 at 8<sup>h</sup> 49<sup>m</sup> 165 at 9<sup>h</sup> 6<sup>m</sup> and 270 at 10<sup>h</sup> 45<sup>m</sup> It became detached and very much smaller in size at 10<sup>h</sup> 45<sup>m</sup> A bright Ca spot at Lat + 19 W was ascending at an approximate rate of 15.7 miles per second between 8<sup>h</sup> 49<sup>m</sup> and 9<sup>h</sup> 6<sup>m</sup> and 3.2 miles per second between 9<sup>h</sup> 6<sup>m</sup> and 10<sup>h</sup> 45<sup>m</sup> the mean velocity being 9.3 miles per second
- 30 Lat — 8 E Eruptive C slightly displaced to red Slants northwards Height 35 at 8<sup>h</sup> 43<sup>m</sup> and 55 at 8<sup>h</sup> 47<sup>m</sup> Changing rapidly
- Lat — 7 W Two streaks slant southwards from near the base Eruptive in Ca 210 high at 8<sup>h</sup> 7<sup>m</sup> 330 at 8<sup>h</sup> 19<sup>m</sup> and about 50 only at 8<sup>h</sup> 44<sup>m</sup> Form rapidly changing in both Ca and hydrogen
- June 25 Lat — 14 W Top flows as far as Lat — 4 W the westernmost point being about 60 high Ca prominence shows another streak flowing westwards

SOLAR PHYSICS OBSERVATORY }  
 KODAIKANAI  
 November 8 1907

J EVERSHED  
 Ag Director KodaiKANAI and Madras Observatories

1

11/6

## BULLETIN No XIII

## 411



D t d b	H IST	B	L t t d		L mb	H ght	R m k
			N th	S th			
1907							
J ly 5	C N	8 38 88 6 55 58 8 5 38 51 50 9 8 38 38 9 2 1 1 0	2 3 1 2  0 5 4  0 5 3 2 0 5 3 3 8	77 5 28 5 Eq  19 80 38 48 8 61 78 9 54 45 38 14 11 80	E E L E C E F E E r W W W W W W	20 10 10 40 45 90 30 0 60 15 4 20 10 40 15 30 20 30	C C 40 C } Tw C t l tth tw 80 O } C t d O ly O l gh n C C l l d t t p D t l d O C B d t t p A llk C lk 20 C C pl t g ph 8 38 d 9h
J ly 6	S M	9 15 10 7 8 15 9 5  8 15 50 30 29 15  27 26 25 15 15 15 10 27 24 23 8 15 10 21 8 15 9 33 33 5 20 8 15	1 0 5 3  1 4  0 5 10  1  0 5 0 5 1 3 1 3 3 0 5 0 5	71 19 18 7  35 41 48 50 6  08 70 76 77 5 65 62 5 50 17 18 27 13 15 31 68 72	F E F L E  D E F E E  E E E W W W W W W W W	10 25 15 15 40  10 40 15 0 60  15 15 30 15 00 20 30 15 15 10 30 5 40 40 35 10 15	A C t kp th ght C Sl t thw d R d d ly m t l mb t l t - 20 E n O V y b ht N t t l l C S N t C M t t l l t P t ly th m N t p dy hyd g t l d y O D t h l O D t h l Ab t 4 b d C y f t B d C S l t t w l h th O S b d t t l N th h C C l d d ly t l mb t l t - 4 W M t t t p A O t k p t l gl th l m th t p m N t l gh O Th gh b k l d C pl t g pl 8 15 d 8 21 O B d t t p D t h d D t h d B ht t t l l C C
ly 8	S M	8 48 9 5 8 2 0 8 58 50 47 43  38 37 35 9 32 8 48 48 9 30 28	1 1 1 5  1 5 2 5 3 1 1 5	77 54 39 5 22 18 17 5 2  19 29 30 32 5 40 51 84 57 45 3 27	E E E E E E E E E E E E E E E E E E E E	20 15 35 40 35 25 60 35 45 15 10 35 95 10 10 90 0 15 10	

D t d b	H I S T	B	L t t d		I b	H ght	R m k
			N t h	S t h			
1907	M						
July 8	SM	9 26	35	17	W	35	B ght
— 23		8 48	1	15	W	30	O
		48		18	W	30	O D t l d
		9 24		7	W	25	
		22		1	W	3	
		20	2	5	W	15	
		19		8	W	25	O t h d
		15		48	W	20	O ph t pl 8h 48 y p pl t
July 9	SS	11 25	2	22	W	10	
		26		9	W	15	
		8	15	48	W	40 ±	S g b d l t l b n t m d
							t t l d
July 10	GN						
		10 40	5	14	D	35	D t h d
					F	30	M t l l i n D D b b b s
		40		1	L	0	
		38		31	D	70 ±	
		50	15	48 5	L	30 ±	
		55	1	10	W	30	
					W	15	
		54	2	50	W	0 ±	
J ly 11	SS	8 53		73	D	25	
		52	2	02	L	30	Oh g g
		5	3	56	D	40	D g g
		43	15	14	L	15	
		38		4	L	40 ±	
		38	2	55	E	10	Cl B ght D <sub>1</sub> D <sub>2</sub> b b b l b
		14	6	14	F	25	A b l k
		12	2	23	L	30	T p m t l m b g t l t — 27 D
		10	2	33	L	100 ±	B g l t N t m t l l
		9 5	05	39	W	5	
		4	05	57	W	35 ±	F t
		0	1	18	W	10	
		8 58	05	50	W	10	
		58		52	W	15	
		58	1	51 5	W	25	C pl t g ph 8h 48m
J ly 12	GN	8 29	1	75	I		
		27	05	63	I	10	
		27	1	60	E	40	
		5	05	47 5	E	40	
				21	D	25	
			05	18	E	1	
		24	2	4	F	30	
		0		17	F	20	
		20		19	F	20	M t
			4	24	F	0	
			65	33	E	90	N w t t p
			05	40 5	E	5	
				42 5	L	15	
			05	54	E	20	
		10	2	8	I	60	
		35	15	9	W	0	
		34	9	22 5	W	50	N w t t p T l y b g l t p t h t
							th w t d f t h t p O
		9 31	15	13	W	0	
			6		W	15	
					W	35	C pl t gr ph 8h 22m nd 8: 37m
J ly 13	SS	9 10	05	28 5	F	15	
		9	1	26	E	25	
		8	1	21 5	E	10	
		0		3	E	10	

[illegible]

D t d b	H ISF	B	L t t d		L m b	H g l t	R n l
			N t h	S t h			
1907							
J ly 16	SS	9 28	4	10	E	80	} C t d t t p 70 S N t 1
—	td	28	4		E	80	
		4	1	7	E	25	
		24	1	95	E	1	
		23	25	145	E	10	
		21	1	3	E	20	
		0		27	E	0	60 n O
		19	1	36	E	10	
		16	5	44	E	60	N w t t p i n O Ch m ph l t d 10 f l t — 1 E
		18	25	605	E	10	M t l l D D b b b b 58168 0186 d 49 41 b ght
		10	05	745	D	20	
		7		88	D	0	D t h d S l n t t w d
		10	1	86	D	10	
		10 10	1	28	W	50 ±	S N t 2 O l g l t y l l l d b t l w y N p m
		9 50	1	6	W	2	
		51		115	W	10	
		50	15	61	W	20	PA 185 — 240 t m l Cl dy O p h t g l l 9 16
July 17	GN	9 23		62	E		O
		28		50	E	25	O
		29	1	38	E	5	} C t l t t p
		29	15	35	E	25	
			2	16	E	20	} A C t k l t l g l t h t p
			05	13	L	15	
		23		75	L	15	O
		8 (	1	2	F	80	
		25	25	9	E	0	T p m t l m l g t l t — 15 D
			1	37	E	3	} T p t d b y O t k
			05	42	E	L w	
		20	1	51	D	10	
		3		85	L	35	O D t l d
			2	85	E	20	GO h g h n d l n t t w l O
		23		725	W	00	
		23		62	W	20	C D t l d
		23		205	W	120	O S N t
		3	4	1	W	30	O p m n t l f m l t — 13 t + 1 W
		3		6	W	15	O p l t g p l 0 23
July 18	SS	0 4	05	32	L	10	
		4	15	80	E	20	
		1	1	26	E	10	S l t t w a d
		1	05		D	0	
		8 59	05	7	E	20	
		58	1	10	E	25	
		56	1	13	L	25	
		6	1	38	D	30	
			1	405	E	35 ±	
		9 53	05	47	W	10	
		10 22		81	W	10	
		9 45		14	W	30	
		45		95	W	30	
		45	1	1	W	20	
		43	1		W	80 ±	
July 24	SM	11 28	1	6	D	5 ±	
		10 12	2		W	25 ±	
		10	1	7	W	15 ±	
				4			b g b d T l g h t l l
J ly 25	GN	11 8	55	50	D	10	
		10			D	25	
		30		1	E	70 ±	D t h d
		1	15	56	E	15	} D t h d
		1		84	W	65	
		1		75	W	0	V y f t
		1	1	51	W	20	O

D t d b	H IS 1	B	L t t d		L m b	H h t	R m k
			N t h	S t h			
1907							
July 25 — <i>td</i>	G N	11 1 1 1 1 1 10 49 11 1 0 0 10 45 11 4 6	1 15 1 1 1 15 0 5 4 10 0 5 3	48 32 28 24 17 2 41 53	W W W W W W W W W	10 15 40 20 10 50 30 15 40	C O O N t l h O V y f t D t h d  C p h t g p l l l
J ly 26	S S	9 8 53 50	1 3 2	50 12 25	E E D	10 25 35	S m g b d l d y w t h W t l m b t b l y f w h t b l
J ly 28	S S	9 20 18 17 13 10 9 6 10 31 14 12 9 28	3 4 0 5 1 5 1 5 1 1 5 1 5 1	48 32 18 9 18 20 71 83 10 29 52	D E D E E E E W W W W	10 40 1 15 10 10 25 25 25 5 20	D t h d S N t  B g h t C  C p m t k n t g h 19 w f l p l t
J ly 29	G N	10 9 20 18  40 29 29 29 17 35  29 29 25	2 3 0 5  1 3 1 5 0 5 1 5	51 26 18  20 59 79 5 51 48 39 25 5 13 5 81 46	D E E E E W W W W W W W	90 60 50 30 25 70 80 20 45 40 60 15 15 45	C D t l d A O t m f m t h t p m t t h l t p m D t h d C p m 95 h g h d l t t h w d C D t h d C 45 d 8 C H g l t t d g 30 C t 10 29 n d 10 45 C C
J ly 30	S S	8 35 35 31 30 28 9 31 8 10 9 27  26 24 22 21 20 18	0 5 0 5 2 0 5 1 0 5 0 5 1 5 0 5 21 1 4 0 5	58 51 5 10 23 60 48 43  12 21 27 34 47 50	D E E D D E W W W W W W W	10 35 20 25 25 25 60 20 30 20 30 50 25 10	C p l t g p h 10 2 d 10 45  C t d C O C p m d t h d f m l m b 60 h g h d m t l m b t l t - 35 W V y b g h t C A h l t } T p t l C
J ly 31	G N	9 4 8 2 0	0 5 0 5 2	79 55 44 4	E E E D	15 20 15 40	C p h t p l 8 10  C t m f w t h d

D t a b	H IST	B	L t t d		Lmb	H glt	R m k
			N th	S th			
1907							
J ly 31 — mid	GN	8 50 58 58 57 15 56 15 15 15 15 9 10 6 5 8 1 15	0 1 05 0 1 1 3 8 1 05 2	11 19 24 30 38 72 80 48 14 10 10 24 39 49 73	E E E E E D W W W W W W W W W W W	15 80 85 10 15 15 70 60 60 60 15 35 45 ± 10 10	O N th g h O O D t h d O D t l d l l k O N l y n t t t p D b l } A C t k t t h t p f t h t C C C A h l k C h t g l h 8 l d 10 80
A g t 3	SS	1 20 20 18 17 14 14 10 9 32 31 5 4 3 0 14 59 58	1 2 8 1 1 15 1 05 1 15 7 05 1 1 1 05 46	56 51 46 27 18 20 48 80 5 42 21 12 5 6 9 27 32 5 46	F F E E I E E W W W W W W W W W W W	10 15 1 15 15 35 20 10 10 10 60 ± 10 80 & 20 40 10 0	O t d t D b l d O l d y w t h b k S t g w d
A g t 4	GN	9 26 2 10 1 8 7 40 90	1 2 05 15 8 1 2 1 3	55 38 5 20 28 45 5 64 78 12 0 8	E E E E F E E W W W W W	30 15 20 10 ± 60 ± 75 20 50 ± 60 ± 80 15	B glt D O l m i t d i f f t n d d t h d f m l m b O p l t g p h 9 40 y p p l t
Aug t	SM	10 55	1	7	W	15 ±	W t y b d
A g u t 6	SM	0 37 9 31 30 29 58 53 53 53 53 42 53 58 40	25 1 11 1 15 05 15 1 25 05 15 25 05 37	57 14 15 18 28 75 69 37 19 8 1 15 23 29 37	E E E E E E W W W W W W W W W W W	35 25 95 20 20 30 65 80 15 20 10 15 25 40 90	D b l O p m 55 h g l d m t l m b A t k g l g l w t h w d f m t h t p O O D t l d O S t f l t - 46 W O O D t h d D t h d O t d t l m b n O C p h t g l 9 58
Aug t 9	SS	9 52 50 48	05 2	38 15 11	E E E	10 25 30	

D t d b	H I S T	B	L t t l		L m b	H h t	R m k
			N t h	S t h			
1907	H						
A g t 9 — t d	S S	9 40	2	10	E	40 ±	Sl t t w d
		23	0 5	30	D	30	
		28	2	35	D	20	
		21		42	E	40 & 0	
		10 1	4	54	W	60 ±	90 C
		57		30	W	10	C
		0	7	19	W	60 ± &	D t d l t h d l y d g O t
		9 59	5	15	W	25	B g h t m t l l D D b b b d b b g h t
		59	2 5	51	W	30	
		56	1 5	69	W	10	C l y w t h b k S m g d O l h t g p h
A g t 14	S S	9 15	2	16	L	40 ±	
		15		13	D	40 ±	
		10	0 5	25	E	0	
		10		28	E	0	
		10	0 5	30	D	10	
		57		30	E	10	
		43	3	35	D	50 ±	
		40	1	7	W	10	O l g h t l y d p l l t d
		32		9	W	20	
		32	1	11	W	20	
A g t 16	S S	9 7	0 5	31	E	10	C
		0		33	E	10	
		0		36	D	10	
		8 56	0 5	17	D	20	
		55	6	10	E	25	
		55	1	4	E	35	
		53	1	4	E	20	
		50	6	17	D	30	
		50	2	24	E	25	
		46		68	E	15	
A g t 17	G N	9 36	1	79	D	30	
		20	0 5	63	W	15	
		24		45	W	50	D t l d
				40	W	10	
		20	3	30	W	10	
		1	2	16	W	35	A h l k
				4	W	30	
		9 50	0 5	60	E	30	
		48	1	37	E	0	
		10 36		3	E	40 ±	C
A g t 18	S S	9 46	4	9	E	0	
		20	10	16	E	50 ± &	O t k t d b t h d t f m t h
				49	D	60	p m
		45		79	E	10	D t h d
		10 36		39 5	W	1 40 &	D
						15	O D t l d
		36	2	27	W	25	
		9 42	8	22	W	20	O
		10 36	0 5	14	W	50 & 70	C
			7	89	W	45	
A g t 18	S S	9 20	2	60	E	20	O p h t g p l 10 36
		20	1 5	44	E	20	O V y f t A h l k
		11	3	37 5	E	50	O I t
		7	1 5	24	E	20	A t k l d f m t h f l t + 31 E
					E	20	A l d l t f m t h t p 60 h g h g f
		20	4	1	E	60	l t + 27 E
		3	4		E	3	O
		2	9	6	E	40	
		8 59		64	E	10	
		56	1	79	E	40	V y f t n C

[illegible]



D t d b	H I S T	B	L t t l		L m b	H g h t	R m k
			N t h	S t h			
1907							
A g u t 22 — t z	SS	8 30 9 25 24 21 20 19 17 16 13 10 7 5 2 58	0 5 2   1 2  10 2  2  2 2 2	8 78 72 60 52 5 50 44 28 1 13  14 28 53 62	E W W W W W W W W W W W W W	25 5 35 ± 10 25 50 40 40 25 40 30 3 150 ± 50	V y f t  D t l d  D t h d D t h d 120 ly O C p h t g p h 8 h 3 m
A t 23	GN	10 2  1 0 9 58 58 10 18 9 14	5  2 2  0 5 1  0 5	16 8 5   5 28 30 32 68  1 6 19	D F F E D L W W W	30 15 25 45 ± 20 20 15 0 ± 10 ±	S A t
A g t 24	SV	11 0 10 49 59 58 49 57 56 49 49 49 49 11 2 10 49 49	1 1 1 1 10 2 8 0 5 8  0 5	52 17 6 2  21 28 57 73 79 77 73 31  10 17 49	E E E E D E D F D W W W W W W	20 25 30 15 50 10 25 & 75 20 60 40 30 15 15 20 35	C N t C C 90 O O O O O O O C P A 180 t 300 t m d R t t h g h t h l O p h t g p h 10 49
A g t 25	SS	11 19 8 3 11 17 17 17 8 35 35 35 11 6 11 10 8 3 11 26 8 3 11 2 24 8 35	0 5 0 5 1 5 2    8 1 7 4 1 5 0 5 2 1 2	51 29 17 13 1   14 17 23 61 74 80 5 74 41 36 80 6  31	E D F F L E E E E E W W W W W W	25 20 0 10 10 25 25 180 & 60 0 10 40 45 25 1 30 25 30	O C C O O O O O D t h d 60 O O O ly 15 C O ly 20 O C D bl O p h t p h 8 l 35 m
A t 27	SS	8 52 0 30 48 46 44	1   2   2	48 24 15 12 7 5	F E D E E E	20 20 30 10 10 & 20 50	V y f t 80 O O O D t h d

D d b	H u IST	B	L t t l		L b	H ght	R m k
			N tl	S th			
1907	M						
Aug t 27	SS	8 44	2	2	E	10 & 20	C T p m t n t p min
— 22		30		18	E	30	T p l ng th l mb f l t — 27 E
		98	0 5	22	E	30	
		35	1	66	D	80	D t l d
	9	23		78	E	0	
		22	1 5	81	E	40	
		20	4	83	E	50	
		18	0 5	81	W	10	V y f nt
		17	0 5	74	W	35	
		8	2		W	30	
			2	15	W	20	
		5	0 5	21	W	60 ±	F t t t p
		1	0 5	26	W	15	G O n C
	8	59	5	30	W	30 & 35	C ph t g ph 8 30
				38 5	W		
Aug t 28	SM	9 18		61	D	15	F t
		16	0 5	31	L	10	
		15		22	L	10	A C t k l nt p n h d f th p m
		12		12	E	25	D t h d
		10	2 5	9	E	20	D bl 50 n C
	8	48		4	E	70	C B d t p
	9	8	1	2	E	10	B ght m t l D D b b b d b b rght
		7	1 5	17	D	20	V y f nt n C
		4	1	81	D	35	O l 7 b d C
		1		84 5	E	35	
		1		60	L	35	
		0	7	72 5	L	45	Th w n t d by
		52	3	80 5	E	35	f t t m n t d by
		49	2	83	E	20 ±	T 1 t d C
		47	3	82	W	30	V y f nt
		45		81	W	25	D t h d
		10	1	4	W	10	A b ght t
		35		8	W	15	A C t k f m t p m t th t p m
		32	11	45	W	45	
		30	2	18	W	15	
		28	3	25	W	35	45 O
		25	5	41	W	45	
	8	48	0 5	49	W	10	C ph t ph 8 48
Aug t 29	SS	9 45	1	58	E	10	
		41	0 5	21	D	25	
		42		16	D	40	
		38			E	50	
		3	1	1	E	15	
		35	1	25	D	15	
		30	2	33	E	10 ±	V t l D D b b b b 53188 0186 d
		30	2	37	E	40	49241 b ght
		29		40	E	80	
		27	0 5	69	E	10	
		27		78	E	10	
		26	4	78	E	40	
		24	2	81	E	3	
		22	4	82	W	80	
		20	0 5	79	W	15	
		18		74	W	15	D t h d
		17		72	W	25	
	10	10		62	W	20	D bl
			2	57	W	10	
		8	1	43	W	15	
		7	0 5	39	W	40	
		5	1	21	W	10	
		2	17		W	100	
	9	54	2	28	W	60	
		53	1	47	W	35	C ph t or ph 10h 20

[illegible]

[illegible]

D t n l b	H I S T	B	L t t d		L m b	H g l t	R m k
			N t h	S t h			
1907	H M						
S p t m b 7 G N	9 27 5 25 23 23 15 15 15 14 8 30 9 35 8 38 36 9 33 32 8 36 9 29	1 1 0 5 0 5 0 5 0 5 0 0 5 0 5 0 0 5 0 5 0 5 1 5 4 2	23                22 5 50 81	21 6 5 36 8 40 53 54 58 65 68 68 58 24 8	E D E D E D E E L E E W W W W W W	2 50 ± 4 1 15 25 15 15 40 ± 15 10 20 0 20 25 40 ± 15 15	W t h p O p h t g p h 8 h 38
S p t m b 8 S S	9 6 42 3 8 50 9 2 8 59 58 9 33 32 8 50 9 29 29 28 26 25 23 23 21 17 8 0 9 13	2 0 5 2 0 5 0 5 1 2 2 0 5 0 5 0 5 1 2 2 0 5 0 5 3	55 87 0 5  8 23 27 49 51 65 82 83 78 73 70 65 59 58 5 49 57	8 23 27 49 51 65 82 83 78 73 70 65 59 58	L I E F F E E E E W W W W W W W W W W	15 10 ± 15 10 15 25 1 40 2 60 20 15 60 ± 20 10 25 15 20 20 10 10	D t h d A O t k f m t p g f l t + 10 W O 25 P g l d O p l t g p h 8 h 50
S p m b 9 G N	9 3 8 7 9 2 1 0 8 58 24 7 56 5 9 21 20 20 19 18 16 8 7 9 4 10 8 7 7 9 5	2 0 5 4 1 5 7 2 0 5 1 1 0 5 2 10 0 6	56 49 36 5 5 18 10 5 23 27 5 35 46 5 49 52 74 79 81 74 6 5 59 31 12 9 21 35 57	10 5 23 27 5 35 46 5 49 52 74 79 81 74 6 5 59 31	E E L D E D E I E D F E E D W W W W W W W W W W	20 10 30 10 15 25 ± 150 ± 60 15 0 70 20 5 50 30 30 15 80 30 50 ± 30 10 70	O d p l a c d t l t f b t 2 A A l f m t p g f l t - 62 E O A t l f m t p g f l t - 20 W M t l l O C C p h t g p h 8 h 7

[illegible]

[illegible]

5



[illegible]

D + d b	H I S F	B	L t t d		L b	H ht	R m k
			N th	S th			
1907	M						
S pt mb 23 SS	9 8	05		72	W	15	F p m t l m b g t l t - 70 W
- t d	7			62	W	45 ±	D t h d
	4			54	W	25	C n t d t t p n C H ght O 20 40
	3			45	W	0 ±	& 60
	1	1		40	W	1	
	8 59			24 5	W	60 ±	A f w d t d t k
	57	0		19	W	15	
	51	3	18 5		W	45	
	49		25		W	30	
	46		37		W	10	
	42	1 5	4		W	10	
	40	1	7		W	10	
	37	3	73		W	20	
							C p h t pl 81 26m
S pt mb 25 SS	8 41		59		E	10	
		1	56		E	20	
	32	0 5	)		E	25	
	32	2			D	25	
	32	0 5	1		F	20	
	28	0		28	I	10	
	15	0 5		61	D	20	
	9 58			7	F	10	
	2	0 5		29	W	10	
	8 53	2	L q t		W	15	
	47	1	5		W	25	
	46		61 5		W	15	
	43		73		W	10	
							P g d c m l l l
S pt mb 26 GN	8 9	1	16		F	20	O
	9 40	1	2		L	1	
	8 9	0 5	14 5		F	10	O
	33		8		L	1	
	9			J	I	40	O
	9			12	L	30	
	9 35	0 5		37	L	10	
	35	0		63	E	45	±
	35	2		66	E	45	±
10 7	2			71	E	10	±
9 9	1			83	D	4	±
8 9	1			66	W	65	
9	0			44	W	60	B d t t p
	1			27	W	1	N l y m t C
	2			24	W	25	S N t
9 52	7			10 5	W	25	
50	1		7		W	30	
8 9	1		35		W	15	
9 45	1 5		0 5		W	15	
							C h t g pl 81 9
S pt mb 27 SS	8 4		81		F	10	C
	4		73		F	10	O
9 15	3 5		10		D	10	
14			11		F	2	
18	1 5		7		E	15	D bl
8 4				3	E	35	D t h d F p m t l m b t t h q t
9 3	1			20	F	10	
8 4				30	I	1	C
4	1 5			34	F	15	C
4	0			78	E	3	C
4	1			83	W	80	C
4	3			62	W	80	C
4	9			45 5	W	65	C N t nt
4	0 5			25	W	10	C
4				17	W	10	C
10 22	10			8	W	30	C t n n O
9 48	3		1		W	35 ±	
8 4			11 5		W	2	O
9 39	2		28		W	5	
8 4	0 5		38		W	15	



D te nd b	H IST	B	L t d		L mb	H ght	R m k
			N th	S th			
1907							
S pt mb 30 SS	8 45 43 42	05	55 59 62		W W W	30 25 10	} M t t t p n O P ng l d C ph t or ph sl 19m
O t b 1 GN	10 12 20 5 10 12 12 12 12 12 12 1 1	6 2 2 1 1 4 35 4 05 8 15	22          7 585	18 20 43 60 83 51 46 14	W W L E E F W W W W W W	70 20 15 15 20 15 10 30 60 10 130 35	
O t b 2 SS	11 10			14	E	25 ±	W th b d
O t b 4 SS	8 43 9 41 8 44 9 36 35 32 31 29	05 1 2 1	44 40 12 7		L F F L F E	40 ± 35 25 ± 30 10 15 40	D t h d 40 ± t 9h 38m 30 C 70 C 1 l ly m t } C O t d t t p l b t l t - 37 E
	23 22 20 21 19 1 17 10 10 10 8 6 50 49	4 3    05 05 1 05 1 2 1 5 0		425 58 775 820 890 785 785 58 50 485 435 210	F E I I W W W W W W W W W W	25 10 20 20 30 ± 25 25 1 1 20 5 10 120 ± 15	
O t b 5 GN	10 38 38 35 9 5 0 10 38 42 30 42 40 38 38	1 05 05 1 1 2 05 2 0 15 4 1	65 25 21	6 415 65 55 83 495 11	I I L E E F D W W W W	1 ± 15 30 15 40 ± 20 20 20 30 & 15 15 120 25	C C A h l l } C n t l t t p n O } T p n t d C C ph t g ph 9h 26m C C C C pl t g ph 10h 38m nd 11l 1m
O t b 7 SS	8 53 51 45 21 43 42 42 9 36 35	15 05 4 2 1 0 05 05 05	47 20	355 415 505 605 625 795 88	F L F E E E E E W	35 ± 15 20 5 15 15 15 10 20	60 C N t l h n O C

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Dat	d	b	I I S T	B	L t t d		L m b	I I t	R m k
					N t h	S t h			
1907									
O t b	11	SS	8 20 18 15 6 5 4 3 0 8 58 55 5 50 45 43 41 40	10 2 0 5 0 0 2 2 5 2 5 1 2 )		39 70 5 77 79 8 77 5 70 38 22 12 10 4 47 52 5 61	I L F I I W W W W W W W W W W	4 4 20 30 25 40 40 30 10 ± 35 30 20 35 2 15 30	Ag p f 31  <

[illegible]

7



D t	d b	H I S T	B	L t t l		L b	H g h t	R m k
				N t l	S t h			
O t b 1	SS	8 45	10	26		E	70	
- id		34	05		24	E	45	
		29	8		29	E	40	
		18	1		85	E	120	C O l m p h l t d l f m th p m
		18	8		47	W	35	t t h h p l
		18	1		10	W	10	
		18	1		7	W	10	
		18	1	1		W	15	
		18	8	265		W	30	
		18		40		W	15	
		18	25	56		W	25	
O t b 2	GN	8 42	1	85		W	60	
		10 10		085		E	35	
		8 12	15	515		L	20	
		4	15	29		E	90	
		10 5	25	12		L	20	
				85		L	40	
			1		3	E	15	
		8 40	15		19	E	30	
		10	0		25	E	40	
		10	1		30	F	20	
		9 54			48	F	10	
		8 37	1		55	D	20	
		37	0		515	E	15	
		12			785	F	80	
		10 28	4		455	W	80	
		8 12				W	15	
		42		4		W	15	
		10 30		6		W	10	
		30		10		W	10	
		8 42		38		W	20	
		42		495		W	00	
O t b 3	SS	8 27		035		L	10	
		34	05	53		E	0	
		30		44		E	20	
		29		38		D	20	V y f t
		28	05	31		E	15	D
		27	05	28		E	25	75 hgl C
		26	15	18		E	15	
		24	4			L	80	
		21	15		18	L	2	
		16	1		535	E	0	
		9 8			685	D	15	
		8 27			815	E	15	
		27			83	W	20	
		9 4	1		48	W	25	
		4	4		435	W	80	
		8 58	05		2	W	15	
		27	4	48		W	60	
O t b 26	CN	8 48		735		E	10	
		18		585		D	100	
		45	15	28		D	25	
		45	1	20		E	20	
		44			10	E	10	
		44	3		185	D	0	
		41	0		28	E	45	
		41			29	E	80	
		41	2		37	E	20	
		40	1		15	L	10	
		18	15		82	L	25	
		18	1		84	E	25	
		18			515	W	10	
		18	05		39	W	15	
		55	4		10	W	35	

D t d b	H I S I	B	L t t d		L n b	H g l t	R n k
			N t h	S t l			
1907 O t b 26 — mid G N	8 2 52 18  18  18	1 1	5 9 16 18 29 33	1	W W W W W W	90 10 60 60 30 30 30	} O t l t p An h d l d v t l l b O M t l m b g t P A 333 C h t g ph s 18
O t b 27 S S	10 18 17 17 1 15 1 11 13 4	0 05 05 05 1 13	41 3 30 12 9	205 36 645 835	L E F L L E E D L	10 0 20 20 5 2 2 10 10	
	10 37 35 31 38 3 8 11 10 29 8	1 2 8 15 3 2	77 565 81 18 85	W W W W W W W W W	50 ± 25 0 0 20 45 80 30 10	O A d t l d t k P b l l y m t l l W t l b d f m t n f l g h t l S l t g w t d	
	28 24 21 8 11 10 23	15 1 05	24 33 37 39 545	W W W W W	60 8 30 30 0	Ob d t l g l l t l l d O p l t l h 8 h 4 l	
O t b 28 S S	11 8 12 6 11 10 34 32 3 1 6 ( 6 6 ( ( 6 6	0 2 1 3 9	545 48  17 38 42 68 28 10  1 7 11 16 28	F I D F D F W W W W W W W	40 30 2 50 40 40 20 35 0 30 20 10 10 65	C  C Ag l f 3 l m  C Th k p n S g b l C l l t g l h l l l	
O t b 29 S M	8 4 40 36 31 30 28 4 21 20 9 59 8 2 9 57 55 50 49 18 40	15 3 4 8 8 15 25 4 1 4 5	675 615 55 7 15 195 28 425 (0 685 095 72 755 645 575 45 40 25 12	D D F E F E I E I E D L W W W W W	20 15 40 50 15 80 15 40 15 25 20 45 10 35 15 15 30 30 35	C D t l d  V y f t  O A d t h d t k  } C n t d b y t k	

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D t n d b	H I S F	B	L t t l		L b	H l t	R l
			N t l	S t h			
1907	M						
N mb 2 SS	10 7	4		81	F	60	
— 22	1			86	W	30	A d t h d tr l
	9 57	2		60	W		I t
	5			59	W	30	D
	54	2		46	W	3	D bl
	52	3		33	W	10	
	50	8		25	W	60	
	47	1		18 5	W	10	
	40	1			W	15	
	41		2		W	30	
	4	2	18		W	2	
	49		5)		W	15	A O l d 7 l g d 180 l g h f t
	39		(4 5		W	10	
	38		6( 5		W	10	
N mb 7 GN	J 7	1	49		J	60	S
			35		F	35	C i l t g pl 91 41
			31		F	30	
	10 57	15	28		I	0	O O t l t t l
	29		11		E	0	A t m t d t l A 106
	23	1		10	F	4r	
	22			0 5	T	5	
	22			24	E	20	
	20			44	I	60	
	20			51	I	25	
	9 7			72 5	I	1	
	57			78 5	W	50	
	57			55	W	30	
	57			4	W	25	
	57			39	W	30	
	57			26	W	20	
	57			10	W	15	
	57			4	W	20	
	57		57		W		
N mb 11 SS	14 18	8	37		F	90	Ob v y f t
	0	2	22		E	25	Ob d l y f m P A 90 t 180
	13 50	1		2	E	25	O l l t g pl 57
	55	4		12	I	30	C y f t l l t l m b g t l t + 17 D
	50	0 5		20	I	25	
	50	0 5		23	I	25	C t l n C
	14 18			29	W	20	
	10			8	W	80	Ob v l d g b k l d
N mb 12 SS	10 5	7		14 5	E	10 ±	O l h t g l l l 18
N v mb 14 SS	9 29	0 5	28		E	25	O l y P A 120 — 180 w m d
	27	1	11		E	10	W t h b l
				26	E	10	
	8 3	0 5		27	F	10	
				41	E	25 ±	
N mb 15 GN	8 47		60		F	15	R m d n l y b t w P A 80 l 180
	47	3	54 5		E	40	W t h b d
	47		50		F	20	
							O B d n t h d m d t s t h e p m t
	47	4	26		E	20	P A 57 5
	9 36	1		8 5	E	20	
	34	2		43	E	25	

D t d b	H I S T	B	L t t d		L m b	H g h t	R m k
			N t h	S t h			
1907	M						
N mb 15 GN	9 34	1		46	E	15	
— t d	9			68	E	30	
	9			65	E	30	
	9			69	E	30	
	8 47			84	W	45	O
	47			80 5	W	10	O
	9 57			78 5	W	20	
	8 47	0 5		70	W	30	O
	47			47	W	15	O
	9 57			44	W	10	
	8 47			41	W	15	C
	47			35	W	15	C
	47			19	W	40	C
	47			14	W	50	O
	9 55	0 5		10	W	35	
	8 47		12		W	10	C
							W t h p
							O p h t g p h 8 h 47m
N mb 16 SS	9 35		77 5		E	10	
	29	1	56		E	0	
	29	1	58		E	45	
	24		49		E	45	
	15	8	28		E	50	
	4	0 5		7	E	25	
	4	0 5		10	E	25	
	10 13			12	E	25	C
	13			1	E	15	O
		2		45	E	10	
	8 54	1 5		51	E	10	B g h t
	48			66	D	25	D p l d b y 10 l 20m
	48	1		67 5	D	20	30 t 10 l 10m
	10 15	6		87	W	65	V y f t h y d g
	12			75	W	90	St m f b t l w y f m t h t p t t l
		1		33	W	30	l g t h 4
	6	11		26 5	W	30	
	3			14	W	60	F l m t l l d
	9 57	0 5	9		W	25	F t
	10 13	0	13		W	10	O
		1 5	20		W		L w h y l g 80 O
	9 50		28 5		W	20	
	39		71		W	10	
							C p h t g p h 10 h 13m
N b 17 GN	8 25		87 5		W	35	C V y f t
	9 20	1 5	58		E	35	
	18	5	24		D	45	
	15		8		D	15	
	13	1 5		15	E	60	
	13	5		19	E	15	
	12	1		24 5	E	15	
	11	1		30	E	30	
	10			51	D	20	
	10			62	D	15	
	8 25			83 5	W	10	C
	25			70	W	10	C
	25	9		32 5	W	25	
	9 30	15		21	W	60	A t m e t d t P A 282
	24	1	Eq t		W	10	
	28		2		W	10	
	28		9		W	20	
	22		17		W	20	
	22		59		W	10	
N mb 18 SS	58	1 5	59		E	25	C p h g p h 8 l 5
	51		54 5		E	2	
	51	0 5	52		E	25	O t d t t p
	50		8		E	5	
	47	1	9 5		E	70	S l t t h w d 6
	46				E	0	D t h d l t g

D t d b	H I S F	B	L t t d		L m b	H g h t	R m k
			N t l	S t h			
1907							
N mb 18 SS	9 45 14 1 11 10 8 7 27 11 13 1 8 27 27	2  1 5   1 1	      1 41 46 5	10 19 30 39 5 20 5 12	E I E I I W W W W W	15 10 10 10 10 65 10 10 15 20 35	C C  O O Ob d t l g h l d C p h t g p h 8 l 27m P A 5 t 05 t h w
N mb 19 GN	9 8 7 7 6 0 30 20 27 1 0 0 10	1  1 1   2 3  3	57 8 28 17    7 5 3 45 6	    64 5 71 40 22	E L E E E W W W W W W W	30 15 25 15 55 0 10 15 30 30 30 30	M t l m b g t P A 275 C C C p h t g l h t 9 h
N mb 20 SS	8 3 28 8 28 28 24 2 21 17 1 2 1 8 0 57 54 51 51 49 48 43 43 41 39 39	2 15     2   14 1 4 2 8 0 5	58 31 32 29 27 9  15 21 55 67 4) 39 19 11 5 9  6 14 28 36 43 49 51 59 65	      15 21 55 67 4) 39 19 11 5 9  6 14 28 36 43 49 51 59 65	- D L D F F D D W W W W W W W W W W W	10 15 30 15 10 15 10 20 35 0 0 10 40 10 35 10 35 10 0 70 70 15 25 5	C V t O  A d t l l t k A t l t t h t t h t p n Th w g l f l t p m C C p h t g p h t 8 h 6 m
N mb 21 GN	8 56 58 46 43 44 43 40 36 9 21  21 20 19 17 6 2	9 1 2 1   6 2 5 16  2	58 53 33 22 Eq t 18 28 55 80 45 41 31 0 11 12 34	    18 28 55 80 45 41 31 0 11	E E E E E L L W W W W W W W W	30 15 40 25 45 15 35 15 25 0 15 20 25 50 45 & 60 30	D t h d f m l m b A t m t n l t P A 132 M t l l d l l d O t d f b t 25 A

D t	d b	H IST	B	L t t d		L m b	I I h t	E m k
				N th	S th			
<b>1907</b>								
N mb 21	GN	9 1	1	36		W	30	
- zt		0		39		W	15	
		0		48		W	20	
		0		49		W	0	
		0		54		W	50	C t d t g t h t t p
		8 58		60		W	40	O h g g t h l m b d t d w t h t b y
		58		65		W	20	s t m
								O p h t ph 8 <sup>a</sup> i 3
N mb 22	SS	9 12	3	56		E	35	
		q		39		D	20	
		9		33		J	3	A l t g C t l 65 h g l p d f m t h
		2	2	15		E	10	t h d
		8 5J	1			D	25	
		57	18		2	E	30	
		49	6		57 5	E	0	
		38			79	E	20	
		38			81	J	15	
		37	1		83 5	E	15	
		2			85 5	E	5	C A t l d t b d t k
		2			88	E	40	C A l t g t k m t t l l t
		10 16	5		74 5	W	35	D bl
		11	2		46	W	25	
		9			8	W	25	M t
		9	1		87	W	25	
		7			28	W	10	
		9 35	4		1	W	35	
		35	5	8		W	20	A d t t l l t g t h w d
		30	19	8 5		W	25	S N t
		22		2 5		W	25	
		14	6	51		W	30	
				60		W	35	
N mb 23		11 3	15		32	E		C pl t g pl 8l 22
		3			9	W	30	C
		3	8	2		W	65	C
		3	3	17		W	9)	C
								O pl t g ph lll gm
N mb 25	GN	8 47		60 5		F	10 15	Sl t j t
		31		27		E	15	T t O
		43		19		E	15	
		45	1	8		f	15	
		89			17	D	15	
		38			26	D	20	
		38	1		30	D	45	
		38	2		34	D	60	
		34			88	E	40	
		9 0	2 5		57	E	20	
		0			77	D	30	} O t l t r c
		8 59	2		88	E	10	c } O t d c
		31			52	W	30	
		57	1		46	W	25	
		58	2		41	W	20	
		5C	2		37	W	20	
		55	8		91	W	25	
		54	3		14	W	20	
		31			5 5	W	50	
		51		21		W	60	
		51		27		W	15	
		50		31		W	15	
		50		39		W	65	D t l d f mlmb
				41		W	15	C ph t g pl 8' 8lm
N mb 28	SS	11 4	1	0 5		E	15	
		8	7			E	20	
		3			8	E	20	
					13	E	20	

D t d b	H IST	B	L t t l		L mb	H g lt	F m l
			N t	t l			
1907							
N mb 26 SS	11 1 0	2 2		0 41	E E	10 80	Cl dy tl l tb l Et h m ph ly w m d
N v mb 27 GN	8 2 25 9 8 7 5 3 1 0 8 58 58 56 55 25 9 21 2 28 8 25 9 20 20 18	15  1 1 3 5    3 1 15  25	07 6 20 23 12   7 18 2 8 5 46	     3 19 48 62 67 69 78 5 81 5 51 38	H H H L D D D D D E D W W W W W W W W	15 10 35 40 20 15 10 80 15 20 20 15 15 25 10 0 15 2 15 50 20	C F t D       C  O N w th mddl fth p m C pltg pl Sl 25m
N mb 28 SS	9 28 20 17 16 15 8 8 59 11 82 97 9 41 88 34 32 25	05 05 1 2 2 2 5 2	75 5 47 28 13    90 4 74 5	18 41 64 78 88 42 5 22	F D E E E D L E W W W W	20 25 10 20 25 30 15 50 15 80 20 15 20 10	D t l d      D t h d t l  C ph tg ph 91 56m PA 350 185 t l w
N mb 29 GN	8 45 18 43 42 42 40 35 37 36 18 18 58 58 54 54 51 50 47	1 4 15 2 3 5 1 1 3 2	64 28 5 11  1 12 81 44 68 5 79 65 59 48 42 26 21 8 17 47	   1 12 81 44 68 5 79 65 59 48 42 26 21 8 17 47	H H H H E E E E W W W W W W W W W	30 15 15 15 15 35 30 30 30 20 10 20 20 50 75 85 30 65	O D t h d f m lmb   O h g g th lmb nd u t dwth t   C O A t m xtnd t PA 257 A t m tnd t j nth l tp m  C pltg ph 84 18m
N mb 30 SS	8 57 56 9 8 8 54  51 v 8	1  8 0 5 4	27 23 1 6  3 1 18	   3 1 18	F D E E E E E	40 10 30 20 25 25 80	B nd thw d C Sl t n thw d  C Tw d t h d t k



D + d b	H I S T	B	L t d		L b	H ght	R m l
			N t l	S t h			
1907							
N mb 30 S 9	8 50			20	I	30	D t h l
— t d	48	13		38 5	E	3	
	43			57 5	E	10	
	40			66	E	90	
	40	0 5		69	E	90	B d t t p } M t t t p
	38	5		79 5	E	50	
	9 8			64	W	25	O V y f t
	21	1		50	W	10	
	20	2		45	W	25	N w t t p
	19	1		32	W	35	
	18	1 5		2	W	30	} O t l by C k
	17	1 5		20	W	60	
	14	4		8	W	10	
	8	4	18		W	20	} C t d by O t k
	7	1	25		W	25	
	4		48		W	15	A O t k 6 l f w i t l w d f m t p
	1		80		W	10	O p h t o r p h 9 l 8 m
D mb 1 G N	9 48		84		W	20	C
	30	1	2		D	15	
	29	3			E	15	
	27			17	E	40	S N t
	48			28	U	30	O V y f t
	25	8		3	E	80	Sr m t t d b t h l t P A 135
	48			47 5	D	15	d t l t h t 154
	20	4		80	D	60	C J l t p m
	48			86	E	30	O M t l t l m
	46	1		66	W	30	
	46			63	W	50	±
	44			47	W	30	
	44			46	W	15	
	40	17		25	W	45 & 20	M t t O
	48		27		W	15	A t n t d t P A 276
	35	1 5	29		W	30	O
	48		46		W	35	O
	48		48		W	15	O
D mb G N	9 35		71		E	10	C l h t g p h 9 l 48 m
	35		67		E	15	O
	8 39		44		E	10	
	9 35		38		E	20	O
	8 39	1 5	28		E	20	
	9 35		21		D	50	O
	8 38		9		E	15	
	38			27	E	20	
	36	1 5		30	E	50	} O t d
	34	2 5		42	E	60	
	32	0 5		44	E	80	
	32	0 5		49	E	60	
	30			79	E	30	
	80	1		8	E	40	A t t d t P A 200 O
	44			76	W	60	O
	44			72	W	50	O
	44			69	W	50	O
	45			66	W	30	
	44	7		30 5	W	60	
	43			11	W	45	
	42		Eq t		W	15	k p t d p l d t d f b b t 02 A O
	41	2	49		W	25	
	44		54		W	25	
O mb 3 S S	9 6	5	47 5		L	10	C p h t o g p h 8 h 44
	4	0 5	39		E	20	
10 23			32		E	25	} O t d O
9 2			23 5		E	30	
2	2		21		F	15	
2	1 5		17		L	20	

D t d b	H IST	B	I t t d		L b	H g l t	R m k
			N t l	b h			
1907	M						
D mb 3 SS	9 8 1 48 9 25 10 23 9 15	15 1 05 1 1 6 2 15	12 29 32 40 49 38 2 10 32		F 20 F 1 E 10 F 10 E 90 W 00 W 10 W 30 W 20		D bl  O D t h l O l l t l y t h g h l l T l l p g l l 10 h 28 C p h t g l l 10 h 28
D mb 4 GN	11 4 9 4 11 46 9 45 11 16 46 46 8 57 11 18 9 17	8 05 2 14 33 52 59 13	58 43 13 36 10 63 26 10 33 52 59 13		E 25 F 30 F 40 I 15 F 30 E 20 W 20 & 25 W 60 W 30 W 0 W 15 W 30		C C A t m t n d t P A 17 C C C C C C C W t l p O l h t g l h l l 48
D mb 5 SS	8 49 47 10 85 95 35 31 8 27 25 22 17 18 14 10 5 4 8 58 59	1 05 32 05 0 2 05 1 05 14 4 1	82 17 81 12 10 9 14 27 32 41 50 59 79 61 28 5 18 59		F 10 E 1 D 25 30 D 45 I 10 I 10 E 30 L 35 E 70 E 40 E 10 W 25 W 40 W 20 W 15 30 20 W 25 W 10 W 20 W 2		A h p f p t O t d t t h  S N t D t l d B d t t p l t t l d V y f t D 4 p m n i d t t l B l t t p } N l y k t d by C
D mb 6 GN	8 2 22 22 22 2 22 2 47 45 48 11 9 8 22 59 22 22 22 54 50 2	2 2 2 2 1 1 5 6 3 12 3 3 2 6 3	70 55 49 48 12 24 18 1 11 43 72 84 57 29 20 5 2 6 57		E 15 E 40 E 25 I 25 L 120 E 60 L 60 D 20 E 35 E 55 D 45 D 20 W 20 W 15 W 50 & 30 W 20 W 10 W 10 W 20 W 60		O l h t g p l 8 10 C C C } J d t t l O } A t m t d t P A 68 A l t l d l d C C h d t l C N t f d C O S l g l t y d p l l t d d ( b t 05 A ) P C b l n D D b b b d b O p h t g p h 8 h 22

D t d b	H I S T	B	L t t d		L b	H g h t	R m k
			N t l	S t h			
D mb 7 SS	1 1		9		E	25	C A d t h l t k
	9 38	3		25	E	45	
	35	2		11	E	40	C l k
	34			2	E	20	A C k 2 l g t t l tw d i
							t p
	34	6		28	E	30	
	3	1		36	E	0	
	10 11			39	E	15	O M t l l t
	9 0			4	E	10	
	10 11			69	E	10	O
	11	7		80 5	W	60	C
	14	0 5		57 5	W	10	C p 40 l l d t d f m l t
							-56 t 61 W
	12	1		34	W	80	P t d t t l
	11			30	W	35	O
	11			23	W	40	C
	11			18 5	W	10	
	11			14	W	15	O
	0	0 5		6 5	W	80	C r m t d 4 f t l t l
	9	2		1	W	30	
	7		15		W	30	O l m 4 b d n d 90 l g l d l t
							t l w d
	6		27		W	30 ±	
	11		30		W	15	
	1	0 5	36		W	15	
	5	0 5	46		W	15	
	0		60		W	15	
D mb 8 KVS	9 23		61		E	10	
	8 2		15		E	45	
	9 15	1 5	11		E		L w p k
	10	2		3	F	2	D t l d l d O n e t d t o l m b O
	10	4		7	E	20	
	3	2		22	E	45	S l t t w l t
	8 50	0 5		47	E	2	
	10 10			82	W	45	70 h h O
	8 2	11		76	W	30	O A t l t l m b t l A 218
	10 3	3		56	W	40	
	9 50	1		37	W	50	M t l b 5 O t P A 244
	45			33	W	30	F t d t l d l d 8 b l d c o t t
							l m b C
	35		1 t 15		W		S l y l w l m
	8 2		25		W	20	O
							O p h t g i h 8 22
D mb 9 SS	8 51		80		E	20	
	47	2	51		L	10	
	48	0 5	46		E	10	O
	4		41		E	20	
	41		17		E	20	
	38	6		9	E	25	
	35	4		18	E	20	B l t
	3	1		37	E	30	S l t thw d
	29	2 5		46	E	35	B g l t N w t t p
	25			71	E	10	
	23			80	W	20	
	21	1		61	W	15	
	20	2		56	W	15	
	9 15	10		36	W	70	S N t
	11			28 5	W	25	
		0		20	W	20	
	7	1		13	W	15	
		1 5		5	W		
	2	1	24		W	25	A O t k 25 h g l n e t d t t
	55	0 5	69		W	15	
	24		86		W	40	C D t h d N t i p h t o g r p h t a k n a t
							8 48
							C p h t g r p h 8 48 m n d 8 4 24

D t nd b	Il IST	B	L t d		L mb	H glt	R m k
			N th	S tl			
1907	M						
D mb 10 KVS	9 17 5	2	80 48		F D	0 2	C I p b l th n th b O p m n t d t PA 69
	17 10 5 0	8 2 4 1	26 5 8	7 20	D E E D	20 30 15 15	O B ght D D b b b b f tly d O p m 80 lth t p t d t PA 118
	17 17			88 40	D D	15 0	C O
	8 17 9 17	4 10		1 72 80	L I W	15 30 90	C C D t l l l d
	17 43 40	1		67 51 41 5	W W W	2 40 40	C L w l t 4 b d d 20 hgh O 50 hgh n C
	17 17 30 25 25 17 17	8 0 5 1 1 1		30 1 5 16 3	W W W W W W W	30 1 15 10 0 4	C O L w } O t d n O d 25 hgh O O O C h t g l l 9 17
D mb 11 SS	9 2 1 1 0 8 58 55	0 1	50 5 47 5 43 5 40 35 15		I I L I E E	10 15 15 40 50 20	B l t w d t l l t O t k b h w y f m t b th d s l d t l d b l t k
	52 17 43 17 15 43	1 1 15 0 5 1		8 5 10 5 54 70 75 63	F F I W W W	L w 20 25 25 15 30 40	O lghtly d pl d t d t 70 O F t
	8 1 1 9 10 37 36 34 32 31 29 27 26 5 23 20 18	1 1 3 5 1 1 0 5 1 1 0 5 1 1 0 5 1 1 1 5		58 50 42 31 5 20 14 8 5 23 27 38 10 7 62	W W W W W W W W W W W W W W W W	15 40 40 15 10 10 10 10 10 30 10 20 3 10 25	O O O O N ly t d Sl l t y l d t t p C pl t g ph 8 51
D mb 1 KVS	8 27 7	7	48 5 24 5		I F	40 80 7 5	C C A t k d w t l w l f m t l t p f b t 10
	27 27 9 35 8 27 27 27	15 2 5 8		17 5 40 43 55 61 43	F F E E W W W	25 0 10 40 0 85 80	O C O O O O O W th f bl f u l b t C ph t g ph 8 2
D mb 14 KVS	11 1 0 0		50 31 24		E E E	20 85 60	C O t l t l t p m

D t d b	H I S T	B	L t t d		L m b	H h t	I m l
			N t l	th			
1907							
D mb 14 KVS — ontz	10 40	11 14	10 5	8	E E	35 10	D t l l t l 80 l g t C A t k f t l m t l b C t l A
	0	25		91 5	E	35	
	15			7	E	10	
	5			59	E	10	
	11 1			78	E	30	
	1			86	E	30	
	45			7	W	3	
	1	6		48	W	20	C \ th h (
	30	5		81	W	1	C N t l l C
	10 17	4		1	W	90	D p p l l y l l 3
	17	3	0		W	1	C N t l l C
	11 2	1	18	5	W	20	
	10 1				W	70	
	17	5	29		W	20	
	17	3	54		W	40	
	11 20		6		W	10	
							0 C C p h t 10 17 W l m l d l l l m L L b
D mb 15 b S	11 47		53		E	60 ±	C V y f t S l t n thw d
	10 49	3	35		E	3	
	48		8		E	85	
	46		4		E	20	B g l
	46		2		E	35	D
	11 47			3	E	15	
	10 39			20	E	10	
	37	1		24	E	20	
	85			30	E	45 ±	
	11 47	0 5		38	W	15	
	47			28	W	15	
	5	1		15	W	10	
	47	6	14		W	40	
	47		46		W	30	
							C C T k S g b l C p h t g p l l l 47
D mb 17 S S	10 26	6	51		E	30	
	0		34		E	40	A g p f 3 p n n H g h t t t l
	11 36	1	1		I	10	C l d 100 O
	11 16	1		5	E	30	
	11 36	5		12 5	F	65	V y f t
	10 12	1		49	E	10	
	9	0 5		6	E	0	
	8	0 5		78	E	15	
	55	0 5		6	W	20	
	11 36			67	W	15	
	10 53	0 5		4	W	45	
	53	0		40	W	25	
	51	5		8	W	20	
	1 36			11	W	60	A y f t l t h l t l
	10 48	4		8	W	15	S N t
	4	11	1		W	10	
	40		30		W	35	
	33	6	39		W	50	
	31	0 5	47		W	25	M t C A O t k f m i t m t s
	80		61		W	10	l t p m T p b d d w l m t l m b g a t l a t + 50 W C
							C p l t g l l l l 36
D mb 19 S S	10 4	2	5		E	20	
	40		16		E	25	
	3			14	E	35	r b
	33	3 5		18	E	10	
	3			26	I	25	
	11	0 5		32	E	15	
	31	0 5		35	E	20	

D t d b	I I S T	B	L t t l		I b	H l t	R m k
			N th	b tl			
1907							
D mb 19 SS — ntd	10 9				E	20	
	2	3		63	I	2	
	10			88 5	I	15	
	10	7		78	W	40	O T p t l f tl th d 60 hgh
	40	2		63	W	1	tl
	40			5	W	15	O
	40	4		41	W	40	C
	40	1 5		91	W	15	O
	40	3		9	W	15	O
	11 13	0		10	W	50	N w t t } A O t k f m t p m t
	10 40	1			W	0	lmb t l t — 23 W
	1 11	1 5	7		W	30	O
	1 11	1	10		W	0	
	10 50	2	28		W	25	
	5	1	34		W	20	T p b d l t lmb t l t + 39 W
	0	44		W	5	O	
	1)	88		W		N p m A lght l p l m	
						I l h g l d l l 180 t 280 t b d	
						O ph t l l 10 l 40 m	
D mb 20 KVS	1 15		61		I	30	O
	0		58		E	15	80 O
	0	1	77		I	15	} C t d O
	0	0 5	51		E	45	
	1		49		F	60	
	11 45		38		L	20	O t
	45		25		I	10	C
	1 15		5		I	10	
	14 35	0		14	F	30	
	30	8		38 5	E	60	
	25			64	E	5	
	2			(	I	15	D t l l
	15 15	6		75	F	90	O l nt sl nt tw d
	14 1			80 5	W	5	} M t t t l
	1	1		89	W		
	5			4	W	15	
	19 0	1		3	W		Sl nt f b t t w l th
45	2		11	W	10	Il m l l	
40	1 5	2		W	10	C	
15 17	1 5	41		W	0		
15		88		W	I	C l l t g l h 15 15	
D mb 21 KVS	0 20	1	60		I	3	} M t t t p
	0		51		I	3	
	8 5		59		I	15	
	0 14		41		I	0	C
	8 52		38		I	0	C
	52		13		I	30	C
	0 12	6		14	I		
	10	2		31	I	50	T p t d t w d t O
	8 2			45	I	25	C
	0 5			55 5	I	25	l l t g l d
	0	0 5		65	I	50	60 O
	40			71	I	25	I l t g l 180 C
	8 52			78	I	90	O
	52	4		80	W	20	C
	9 30	2		8	W	L w	O
	8 52		10		W	30	
	9 7		18		W	10	O ph t g pl 5 52
D mb 22 SS	9 21	4	59		I	60	D ubl
	8		84		D	50	O Sl t t l w d
	2	1	24 5		F	15	
	21		7		D	20	
	20			0 5	E	20	
	18	7		18 5	D	85	N w t t p

[illegible]

D t d b	H I S I	B	L t t l		L m b	H h t	R	
			N t l	S t l				
1907								
D mb 25 KVS	8 36		77		I	25	C	
	3		75		I	0	C	
	9 45		63		I	20	O D t l d	
	8 36		19		I	0	O	
	36		37		I	10	O S l t g t l w d	
	36		25		E	20	O C	
	9 45		0		E	I	O	
	8 36		17		E	20	C	
	36		10		E	20	C	
	9 40	15			I	15	C	
	40				I	30	O t d O	
	33	15		1	I	5		
	33			26	I	10		
	30	4		14	I	2		
	0			62	F	L		
	18	1		6	I	20	A C t k f t l t p f t h m t l t	
	15			7	I	30	I m d t d t P A 154	
	10			8	I	5	I t	
	17	05		71	W	10	O	
	8 36			47	W	15	O	
	36			11	W	10	O	
	78	4		23	W	30	O	
	10 10			13	W	10		
	2		31		W	17	I t O } O t l b y O t l	
	0		43		W	25	A l t l d t l	
	9 55		50		W	15	C p h t g p l 81 36	
D mb 26 KVS	8 16				I	17		
	10 0				I	0		
	9 7			38	L	15	S l t g t d t l C t O	
	53			46	I	17	h l m d C t	
	50	15		58	I	17	S N t	
	18			2	I	10	O	
	8 16			7	I	17	C	
	16			8	E	1	C	
	16			8	W	20	N U l l	
	4			70	W	30	l l	
	10			12	W	15	C t n d 4 b d O	
	8 16			3	W	10	C	
	9 3	1		7	W	1	I l t l C l y l g t k t d	
	38	1	15		W	0	K f l 4 200	
	39	1	5		W	15	A C t k t l t d f 3 t w d w t	
	27	2	14		W	20		
	2		21		W	15		
	2	05	24		W	1		
	8 16		58		W	120	O l r 15 l d	
						10	O p l g l 8 l r	
	D b 27 KVS	9 5		47		F	15	
		10 40		12		I	10	
		8 59		24		I	10	
		57			7	I	10	
		55	2		27	I	10	S N t
		10 30			47	E	15	l w p m
8 70		1		70	E	10	C	
10 30				00	I	60	O 80 y f l m l	
30		2		7	I	20	O	
30		2		71	I	15	C	
0		15		76	I	20		
30				80 5	I	30	C D t h l	
9 55		9		11	W	70	Tw I o l t g t l	
0				15	W	0		
15		1		8	W	25	I l t d n O	
15		2	05		W	2		
15					W	L		
40			155		W	10		
35		10	26		W	25 t 10	A f p w t h top	
			775		W	20	4 l m t d t h d f m l m b	
10			87		W	10	C p h t g p l 101 30m	

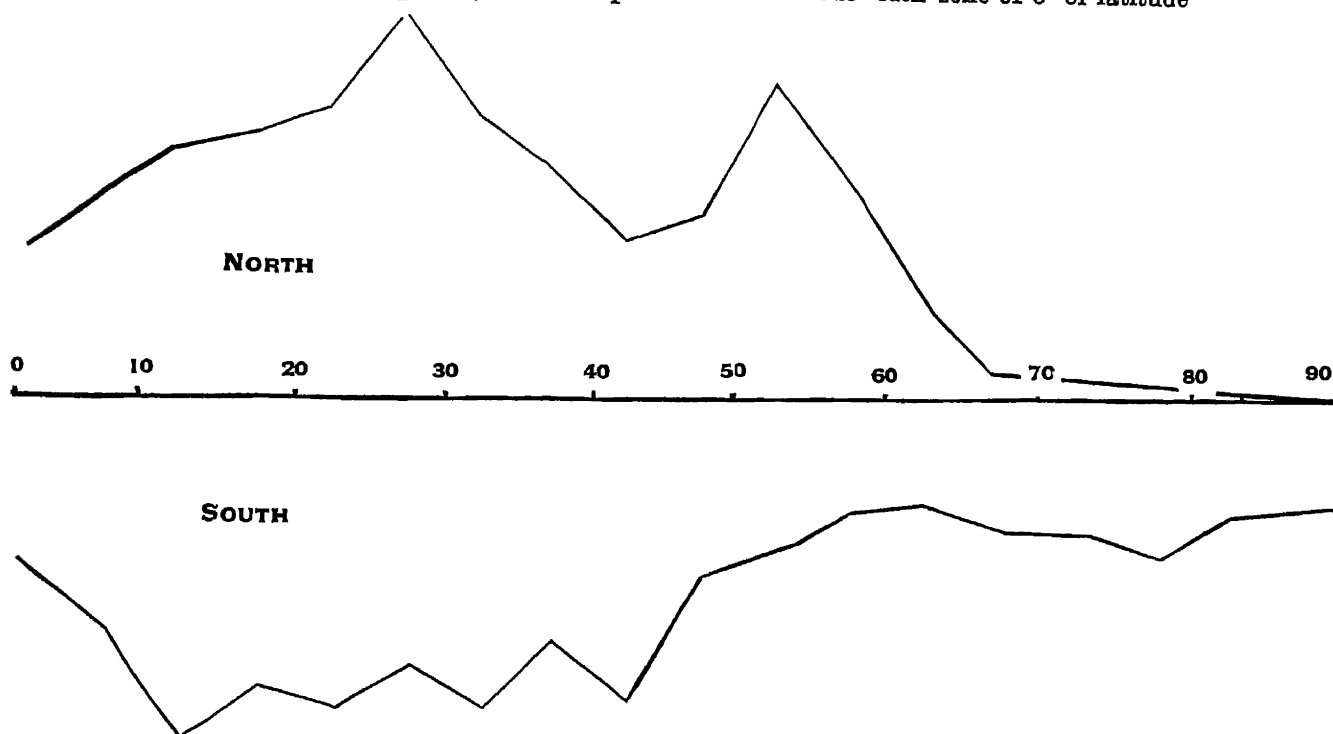


[illegible]



# REMARKS ON THE DISTRIBUTION OF THE PROMINENCES IN 1907

The general features of prominence distribution during the year are shown in the accompanying diagram which represents graphically the mean profile areas found for each zone of 5° of latitude



Unlike the previous year the zonal distribution in 1907 is quite unsymmetrical in the two hemispheres. The polar prominences which have been so marked a feature in both hemispheres since 1905 have practically ceased to exist in the north although strongly represented in the south. In the north again well marked maxima of activity are shown in the zones 25—30 and 50—55 whilst in the south the entire region between 10 and 45 has been almost uniformly prolific.

Dividing the year into two periods of six months brings out another feature namely a great falling off in mean areas in the northern zones during the second half of the year notwithstanding a slight increase in the mean frequencies and it is curious that a similar reduction of activity affecting the northern maxima occurred during the second half of 1906.

The distribution of the southern prominences has remained practically the same throughout the year.

The total activity of each hemisphere of the sun compared with the previous year may be inferred from the following table—

MEAN DAILY PROFILE AREAS OF PROMINENCES

	1906	1907
	Sq. units	Sq. units
North	2.51	1.92
South	2.17	2.27
Total	4.68	4.19

In the abstract on page 456 tables are given showing the monthly quarterly half yearly and yearly frequencies as well as the mean heights and latitudes derived for the two hemispheres. It is to be noted that the mean frequencies are derived from the total number of days of observation without allowing for partial or imperfect observations and the smaller frequencies found for the months of June July August and

November are probably mainly due to the unfavourable weather in those months. If allowance is made for the partial observations the half yearly frequencies work out as follows —

P	l	N d y	nb t m	f b l b	b s d y	M	f l d g	l m	y p q t	d m	T t l m f q d m
			f p	t l	b t						
				q	l t t l	N	l m	th		S th	
				p l t	d y						
J u n y 1 t	June 30				165			82		114	197
July 1 t	Decembe 31				182			84		108	194

Metallic prominences were of frequent occurrence 111 having been recorded. Of these 104 were confined to the sunspot zones the mean and extreme latitudes observed being given in the following table —

	N mb	d d	M	l t t u d	D t m l t t u d
No th	4		157	+ 8	+ 44
S th	50		156	- 7	- 50

The remaining seven were widely distributed in longitude but occurred in a narrow zone of south latitude entirely outside the spot regions the mean being  $-72$ . The only metallic elements observed in these high latitude prominences were Na, Mg and Fe while many of those in the spot latitude gave in addition the lines of Ba and Ca together with a considerable number of unidentified lines probably including Ni, Mn, Cr and Ti.

Sixty prominences of 2 minutes or more in height were recorded during the year. Twenty four of these were in the northern hemisphere and thirty six in the southern. Twelve of the latter occurred in the high latitude zone of activity having a mean latitude of  $-72$ . The highest altitude was recorded on March 14 in a transient eruption in north latitude  $63$  in the calcium photograph this reached  $6\frac{1}{2}$  minutes. Another short lived prominence nearly in the same heliographic position was observed and photographed on May 11 in latitude  $+59$  it attained  $20$  in calcium. Eruptive prominences attaining considerable altitudes were also photographed on the following dates — May 3  $+20$  E (290) May 25  $+15$  W (270) May 30  $-8$  W (30) July 4  $-63$  W (315) July 25  $-26$  W (240)

[J E]

## ABSTRACT FOR 1907

190	f d y f l	f p b	f d l f q y	h h	F q y l l p l		M l l l p h l t l	
					N u	S th	N u	S u
J y	27	518	192	315	80	110	17	4
F b y	8	112	219	01	88	129	96	423
M h	3	662	214	906	91	122	319	409
Ap l	30	34	178	307	73	104	317	46
M	31	604	195	338	83	11	381	133
J	2	33	151	282	60	90	34	371
J ly		34	157	87	64	9	370	34
A t	19	298	15	290	6	1	96	132
S p t m b	7	543	01	279	89	111	337	419
O t b	5	491	15	299	91	100	340	16
N m b	20	36	163	271	70	97	30	331
D m b	28	8	159	271	85	112	358	123
F t q t	86	1792	208	316	87	11	0	117
S l q t	83	1470	177	314	73	103	354	11
Th d l t	68	1186	14	84	74	99	36	403
F th l t	73	137	168	8	83	101	3	114
F r t h l f y	160	326	193	315	80	11	36	117
S n d h l f y	141	259	181	283	79	10	91	105
Y 190	310	551	188	901	89	107	384	413

H l p h l t t d f p n 107		N m l f p 1907					M d l y f l 1907 (J l y)
		F t q t	S d q t	l h d q t	F t l t	F t h l f y	
N th	90 t 81	18	14	6	16	7	0166
	80 t 71	5	16	19	2	41	271
	70 t 61	1	8	35	49	54	0166
	60 t 51	10	102	70	4	204	116
	50 t 41	7	73	3	83	148	1027
	40 t 31	88	94	4	8	182	1061
	30 t 1	134	106	3	100	210	139
	20 t 11	12	92	80	91	211	1102
	10 t 1	189	3	3	33	21	1345
E l t		10	9	8	9	19	0122
	1 t 10	121	114	83	81	238	1358
	11 t 20	13	109	99	118	26	160
	21 t 30	1	92	110	97	229	1473
	31 t 40	114	9	70	89	09	1243
	41 t 50	89	134	84	108	24	1405
	1 t 60	137	7	47	58	184	0976
	61 t 0	11	80	56	79	135	1115
	71 t 80	187	3	81	1	30	1324
S th	81 t 90	61	59	46	52	10	0796

## NOTES

1907

July

- 3 Lat - 9 W Bright not metallic Narrower at top A streak connects its top to the limb at Lat - 4 W A Ca streak 12 long proceeds northwards from the top Height 0 in Ca
- 4 Lat - 4 W Ca Intensely bright eruptive At 8<sup>h</sup> 14<sup>m</sup> it was detached and 240 high with the lower end about 80 from the limb At 8<sup>h</sup> 18 it was 315 high and connected to the limb by two streaks At 8<sup>h</sup> 41 it separated into two slender prominences 150 high and connected to the limb at Lats - 3 and - 5 W
- 6 Lat - 41 E Bright There was a very bright point at the base at Lat - 40 L Not metallic A low Ca streak connects it to the limb again at Lat - 6 E
- 14 Lat - 3 E Slants so thin Two slender streaks from it meet the limb at Lats - 3 and - 41 E D D b<sub>1</sub> b<sub>2</sub> b<sub>3</sub> b<sub>4</sub> 53168 50186 and 49241 were bright at the base
- 16 Note 1 Lat - 4 A streak 40 high slants eastwards from it The streak is longer and about 0 high in Ca  
Note 2 Lat - 28 W Surmounted by a strip extending from - 30 to - 18 W Base 5 broad in Ca
- 17 Lat - 26.5 W Ca A long cloud extending from Lat - 38 to - 15 W Its western end was 80 high
- 28 Lat - 9 E Double very bright metallic Very bright also in D D b<sub>1</sub> b<sub>2</sub> b<sub>3</sub> b<sub>4</sub> Slightly displaced to red at base There was a bright Ca flocculus near it

August

- 2 Lat + 19 W At 10<sup>h</sup> 10 there was no prominence there but C was slightly displaced to red or 2 of the chromosphere At 10<sup>h</sup> 11 short jets began to appear and the displacement became less and less till it completely disappeared at about 10<sup>h</sup> 15<sup>m</sup>

September

- 4 Lat - 10.5 W A Ca streak proceeds from its top as far as Lat - 27 E and another as far as - 11 E
- 10 Lat + 61 W The top meets the limb again in Ca at Lat + 48 W
- 15 PA 180 - 250 n examined and the rest through thick curus Ca photograph 9<sup>h</sup> 51<sup>m</sup> only west limb visible in it
- 21 Lat - 23.5 W Slants as far as - 30 W Southern end 45 high in Ca
- 26 Lat - 10.5 W Top extends in Ca as far as Lat - 18 W There is above it a detached Ca streak 50 high
- 29 Lat + 18 W A streak from the top meets the limb again at Lat + 8 L height of streak 35 The Ca prominence is 6 broad

October

- 10 Lat + 46 W Not in Ca at 9<sup>h</sup> 05 Slightly displaced to violet at top
- 11 Lat - 38 W The top flows westwards and meets the limb again at Lats - 29 and - 6 W Height 120 in Ca
- 12 Lat + 29 W Not found in Ca nor in hydrogen at 9<sup>h</sup> 5 At 9<sup>h</sup> 18<sup>m</sup> C was slightly displaced to red in it
- 13 Lat + 11 I Rapidly changing very bright metallic
- 14 Lat + 10 I Metallic Bright lines - 6677 (H) D D 53168 b<sub>1</sub> b<sub>2</sub> b<sub>3</sub> b<sub>4</sub> 50186 50160 4241 and 4924
- 30 Lat + 9 and + 1 E Met at top Ca prominence slants southwards reaches to 120 at + 2 E and to 150 at - 5 L and nearly meets the limb again at Lat - 13 E

1907

November 22 Lat + 8 5 and + 22 5 W A group of about half a dozen eruptive and metallic prominences. A streak slanting northwards from the top was 90 high in hydrogen at J<sup>h</sup> 30 but it was 150 high in Ca at 8 22<sup>m</sup>. The prominences were all rapidly changing especially those at Lat + 9 and + 16 W. F was displaced there about 2 A both ways but the direction and amount were rapidly changing (9<sup>h</sup> 3<sup>m</sup>). Bright lines — 6677 (H $\alpha$ ) D D 5351 (Fe) 5316 8 (Fe) 5283 8 (Fe) 5276 2 ( $\frac{1}{0}$ ?) 5234 8 (—) 5197 4 (Ni Mn) b<sub>1</sub> b<sub>2</sub> 5018 6 (Fe) and 5016 0. The prominence at Lat + 9 was completely visible in 6677 D D 5316 b b and b.

December 1 Lat - 17 E seen in Ca photographs at 8<sup>h</sup> 2<sup>m</sup> and 8<sup>h</sup> 57<sup>m</sup> but not at 9<sup>h</sup> 4<sup>b</sup>  
 5 Lat - 14 E Bright. There were but half a dozen prominences 1 high between Lat - 11 and - 21 E. They were continuous in Ca.  
 9 Lat - 36 W Changing and more continuous in Ca. Height 120 in Ca at 8<sup>h</sup> 48.  
 17 Lat - 8 W Bright metallic D D 5316 6 b b b b 5018 6 and 4024 1 brilliant.  
 21 Lat + 47 W Ca prominence 120 high and 12 broad at base. A C streak 8 long proceeds southwards from it.  
 6 Lat - 62 E Connected by a Ca streak with the last prominence. Another Ca streak extends as far as Lat - 65 E.  
 27 Lat - 7 E b b b, bright. Height 25 in Ca. A Ca streak from the top extends to Lat - 13 E.  
 28 Lat - 12 W D D b b b<sub>2</sub> and b<sub>1</sub> bright and C slightly displaced to red at the southern end.

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